



Visualizing Research Trends in Positive Youth Development through Sport: a VOSviewer Bibliometric Analysis

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Article History

Received August 2024
Accepted October 2024
Published Vol.13 No.(3) 2024

Keywords:

Bibliometric; Positive
Youth Development
Through Sport; VOSviewer

Abstract

Research and publications on positive youth development through sport instruction have been widely conducted in various countries. However, this trend does not always reflect the existing conditions. In fact, positive youth development through sport has a significant positive impact on the younger generation. This study aims to analyze the visualization metrics of publications on positive youth development through sport over the past ten years (2013-2023) using the literature review method. Examination using Scopus through the Publish or Perish (PoP) application found only twelve articles (out of a total of 74 articles) that met the VOSviewer visualization analysis criteria. The results of the study showed that the highest publications occurred in 2021 with 56 citations, and in 2018 with 55 citations from two articles each year. VOSviewer visualization confirms that positive youth development through sport instruction has great potential to be further developed with other terms, so that it can more effectively meet the needs of the younger generation. This study presents the results of computational bibliometric mapping of data published in research articles. Future research could consider broader aspects of PYD teaching and link it to other terms to enhance the various aspects that support positive adolescent development.

How to Cite

Hidayat., Am'mun, A., Fitri, M., & Mahendra, A. (2024). Visualizing Research Trends in Positive Youth Development through Sport: a VOSviewer Bibliometric Analysis. *Journal of Physical Education, Sport, Health and Recreation*, 13 (3), 503-511.

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INTRODUCTION

Education has pedagogical goals, therefore education will not be complete without physical education, sports and health. Physical education is responsible for educating/training the body, where the body is seen as an object (Lynch & Soukup, 2016) as the only subject in the curriculum whose focus is on combining the body and physical competence with learning and communication (Lynch & Soukup, 2017) offers direction to success (Lynch, 2014).

Physical education activities in Indonesia often only focus on the sports aspect itself, such as motor skills, achievements, and so on. On the other hand, there are many benefits that we get from physical activities, such as psychological life skills (Ferguson & Shapiro, 2016), moral values (Arnold, 1994; Pennington, 2017; Anira, 2021), and character (Oddner, 2010). To achieve quality learning in physical education requires careful selection in curriculum development, pedagogy and assessment in education, but the meaning of these developments depends on the cultural, social and institutional interpretation of these terms in schools (Penney et al., 2009). Through physical education, it is expected to stimulate the development and physical growth of students, stimulate the development of attitudes, mental, social, balanced emotions and students' motor skills. The importance of the role of physical education in schools must be taught properly and correctly. As the saying goes "Mensana in corpore sano" in a healthy body there is a strong soul, therefore we must start from the body first, if the body is healthy then the soul will be strong, and can carry out daily life activities. Physical education and physical activities form the main content in learning and regulation functions as the main source of student development (Ho et al., 2017).

Physical activity is a component of a complex process involving the development, learning, and assimilation of skills, values, norms, self-perception, identity, and roles provided by various family environmental variables and social involvement (Batista et al., 2016), such as socio-demographic groups, profession, education and area of residence, which may be potential factors influencing children's and adolescents' physical activity in their leisure time (Xiao Lin Yang et al., 1996). Promotion of an active lifestyle can be done through holistic lifelong learning acquired and applied in the context of movement and physical activity through physical activity intervention programs as early as possible (Hafner, 2015). Schools have been identified as a key setting in

Indonesia to initiate and implement physical activity interventions for children.

Sports in Indonesia are regulated in Law Number 3 of 2005 concerning the National Sports System which explains three contexts of sports, namely: 1) educational sports; 2) recreational sports; and 3) achievement sports. Then Law Number 11 of 2022 concerning sports emerged which explains three contexts of the scope of sports, namely: 1) educational sports; 2) community sports; and 3) achievement sports. The UN in its Sustainable Development Goals (SDGs) 2015-2030 program emphasizes that sports are used as a development instrument along with the Sport for Development and Peace (SDP) program which is specifically designed in the field of sports. The aim is that the implementation of systematic and structured sports can provide important contributions to public health, education, gender health, poverty alleviation, HIV/AIDS prevention, environmental sustainability with peacebuilding and conflict resolution in a country (Anira et al., 2021).

In addition, physical activity is also in line with the concept of Positive Youth Development (PYD), which is personal capital in building a strong character in a person (Anira et al., 2021). PYD as the development of personal skills or assets, including cognitive, social, emotional, and intellectual qualities necessary for an adolescent to become a successful member of society. (Weiss et al., 2014) Effective PYD programs offer structured activities that enable youth to learn physical, psychological, and social assets that prepare them to function successfully as members of their communities and the larger society. These assets or competencies are often referred to as life skills (Danish et al., 2002). When young people have mutually beneficial relationships with people and institutions in their social world, they will move towards a future that is full of hope and marked by positive contributions to themselves, their families, their communities and society. This ability is at the heart of the PYD concept (Lerner et al., 2005).

The concept of PYD has been an issue of interest to developmental psychology of sport in recent years (Holt and Neely, 1886). Sport serves as an especially suitable setting for teaching life skills to young people (Gould & Carson, 2008). Because when exercising, they are able to develop various skills, such as goal setting, emotional control, self-esteem, and hard work ethic. PYD is considered successful when the younger generation gets the opportunity to develop these competencies and skills through interactions with others

(eg: family, peers, school and community). Furthermore, PYD can be applied to life skills-based training programs (Holt & Neely, 2011). Life skills are one component of PYD. All studies on life skills are focused on PYD. Therefore, sports are considered as one of the right means in developing life skills. (Gould & Carson, 2008). However, in the current physical activity program, life skills components are rarely structured and integrated. So that the benefits obtained in sports are only limited to the sport itself while the broader meaning of sports activities for the sake of achieving the development of the quality of life of society in a broad sense in Indonesia cannot be achieved.

Given the limitations of research on PYD in sports as mentioned above, future PYD research still has many opportunities. However, a comprehensive bibliographic analysis is needed to identify relevant “keywords” in PYD research in sports. This study suggests the use of bibliometric studies to overcome the problem of tracking PYD bibliographies in sports. Bibliometric studies are useful as decision-support tools in setting research priorities, tracking the development of science and technology in a particular field, and highlighting emerging areas in the field (Donthu et al., 2021). Such as examining publication patterns, including subject areas, authors, citations, titles, and other factors (Mejia et al., 2021). Thus, the results of bibliometric mapping will provide useful and meaningful contributions for practitioners in the future in finding opportunities and innovations for greater contributions (Marmoah et al., 2022).

Given the limited research on PYD above, exploring PYD in future research is very open. However, comprehensive bibliometric metrics are needed to ensure “Keywords” that are worth searching in PYD through Sports. This study proposes the use of bibliometric studies to solve the problem of bibliographic tracking of PYD through Sports. Bibliometric studies are useful as a decision-support tool in setting research priorities and tracking the evolution of science in a particular field and highlighting areas that are developing in the field, for example examining publication patterns such as subjects, authors, citations, titles, and other factors. Thus, the findings of bibliometric mapping will provide useful and meaningful contributions for researchers in the future and find opportunities and novelties to contribute more. The contribution of the results of this study is to provide the latest metric literature on the development of PYD through sports in the world through tracking network visuali-

zation, display, and density, as well as providing contributions to researchers, teachers, and policy makers in the future regarding the challenges and opportunities for developing PYD through sports in supporting the Sustainable Development Goals (SDGs) Program 2015-2030 emphasizing that sports are used as a development instrument along with the Sport for Development and Peace (SDP) program which is specifically designed in the field of sports.

METHODS

This study uses a quantitative approach with a literature review method. Literature reviews help researchers understand previous research in a particular field. This allows researchers to more easily identify gaps in innovative ways (empirical, knowledge, theoretical, methodological, application, and population) in the literature and project potential future research (Chigbu et al., 2023).

This study applies bibliometric analysis to measure, track, and analyze the social and structural relationships between various components of the literature. In addition, bibliometric studies are chosen because of their ability to analyze big data quickly and accurately and provide practical interpretations of keyword metrics. This study involves types of analysis such as co-authorship and co-occurrence, with the units of analysis including authors and keywords. The calculation method used is a full calculation, by setting a minimum number of documents and authors, the frequency of keyword occurrences, and the term extraction field from the title and abstract, including the minimum number of term occurrences (Blegur & Hardiansyah, 2024).

The initial stage in collecting scientific bibliographic data uses data from Scopus with the help of the Publish or Perish (PoP) application with the keyword “Positive Youth Development through Sport” for the period 2013-2023 (with a maximum limit of 200 results). From this search, 74 articles were obtained as listed in **Table 1**. All articles examined (each title) were stored in the research information system (RIS) format in the document folder to monitor publication and citation trends.

The second stage involves importing article data in RIS format from the document folder into the Mendeley Reference Manager application to verify information such as author, title, publication (including journal name, volume, issue, and pages), and article type (journal and proceedings), and to edit and complete the article

abstract. The goal is to ensure that the data to be analyzed using the VOSviewer application is reliable. Without careful verification, the metrics displayed can be biased, including issues such as article duplication. The results of this verification resulted in twelve articles that were eligible for the analysis stage with VOSviewer.

The third stage involves analyzing the visualization of RIS-formatted articles using the VOSviewer application, with a particular focus on the graphical representation of bibliometric maps. VOSviewer's functionality is very useful in displaying complex bibliometric maps in an easy-to-understand manner.

Table 1. Citation metrics from PoP

Citation Metrics	
Publication year	2013-2023
Citation year	11 (2023-2023)
Paper	74
Citation	1789
Citation/year	162.64
Citation/paper	24.18
Citation/author	1789.00
Paper/author	72.99
Author/paper	0.99
h-index	21
g-index	41
hl, norm	21
hl, annual	1.91
ha, index	9

There are three events to interpret when using VOSviewer. First, the network visualization where items are represented by their labels (default or circles). The size of the label and circle of an item is determined by the weight of the item. In addition, the distance between two items in the visualization roughly indicates the relatedness of the items. The closer the distance between two items, the stronger the relatedness. Second, the overlay visualization, if an item has a score, the color of the item is determined by the score of the item, and by default the colors range from blue (lowest score) to green to yellow (highest score). Third, the items at a given point by default, the color ranges from blue-green to yellow. The more items there are around a point and the higher the weight of the surrounding items, the closer the color of the point will be to yellow. Conversely, the fewer the number of items around a point and the lower the weight of the surrounding items, the closer the color of the point will be to blue

(Blegur & Hardiansyah, 2024). The VOSviewer application is used to generate three types of publication variations: network visualization, density visualization, and overlay visualization, which are tailored to the network of relationships between items (Lardika et al., 2023).

RESULTS AND DISCUSSION

Publication Trends

The metric shows that the trend of scientific article publications on sports with the keyword PYD is still limited. In the last ten years, there have only been twelve articles successfully checked from Scopus (journal articles), as seen in Figure 1. The articles were published starting in 2016 and 2017 (1 document; 8.33%), followed by 2018 and 2019 with additional articles (2 documents; 16.67%). In 2020 there was a decrease (1 document; 8.33%), then there was an increase again in 2021 (2 documents; 16.67%), followed by a decrease in 2022 (1 document; 8.33%), and an increase again in 2023 (2 documents; 16.67%).

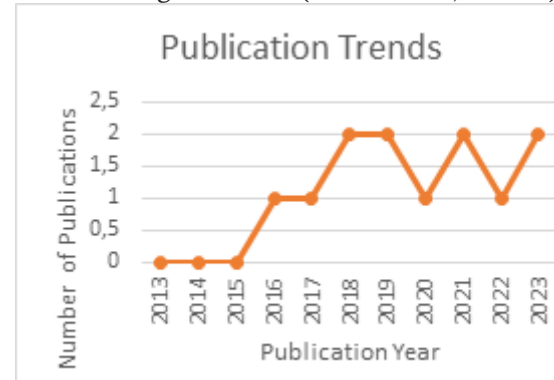


Figure 1. Publication Trends

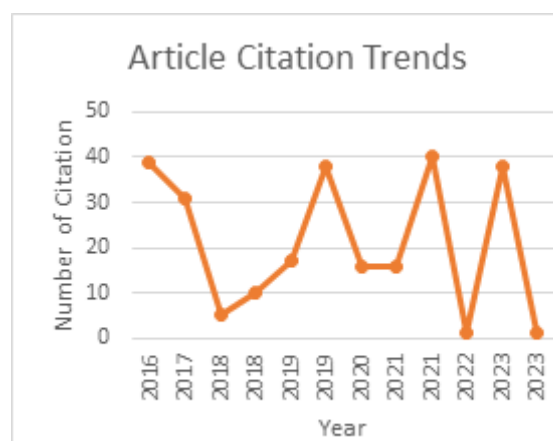
Based on the results **Figure 1** of the examination of the twelve articles that have been analyzed, the articles are then grouped according to the author's name, article title, year of publication, and number of citations. This information is presented in **Table 2** as follows:

Citation Trends

A total of 252 citations during the last 10 years of PYD publication journey through sports. As shown in Figure 2. From the articles that were successfully published, 2021 received the highest number of citations (for two articles) with 56 citations, followed by 2019 (two articles) with 55 citations, 2023 (two articles) with 39 citations, 2016 (one article) with 36, 2017 (one article) with 31 citations, 2020 (one article) with 16 citations, 2018 (two articles) with 15 citations, and 2022 (one article) with 1 citation.

Table 2. Number of publications on character education and physical education

Author	Title	Year	Cite
Fernando de Sousa Ferreira dos Santos, Martin Camire & Paulo Henrique da Fonte Campos	Youth sport coaches ' role in facilitating positive youth development in Portuguese field hockey	2016	39
Victoria Povilaitis, & Katherine A. Tamminen	Delivering Positive Youth Development at a Residential Summer Sport Camp	2017	31
Fernando Santos & Thomas J. Martinek	Facilitating Positive Youth Development through Competitive Youth Sport: Opportunities and Strategies	2018	5
Leisha Strachman, Tara-Leigh McHugh, & Courtney Mason	Understanding positive youth development in sport through the voices of indigenous youth	2018	10
Donna O'Connor, Lauren Gardner, Paul Larkin, Alun Pope, & A. Mark Williams	Positive youth development and gender differences in high performance sport Positive youth development and gender di ff erences in high performance sport	2019	17
Jill Kochanek and karl Ericson	Interrogating Positive Youth Development Through Sport Using Critical Race Theory	2019	38
Tarkington J. Newman, Leenn M. Lower-Hoppe, Mark Burch & Lauren M. Paluta	Advancing positive youth development-focused coach education : contextual factors of youth sport and youth sport leader perceptions contextual factors of youth sport and youth sport leader perceptions	2020	16
Mareidith A. Whitley	Using Behavioral Economics to Promote Positive Youth Development through Sport Using Behavioral Economics to Promote Positive	2021	16
Mark W. Bruner, Colin D. McLaren, Jordan T. Sutcliffe, Lauren A. Gardner, David R. Lubans, Jordan J. Smith & Stewart A Vella	The effect of sport-based interventions on positive youth development: a systematic review and meta-analysis	2021	40
Carlos Ewerton Palheta	Challenges in Promoting Positive Youth Development through Sport	2022	1
Santosa, Fernando , Martin Camiré, Dany J. MacDonald , Leisha Strachan, Marta Ferreira Rathwell	Decision-makers' interactions that co-determine Positive youth development through sport: a critical realist examination	2023	38
Luis Almeida, Tresa Dias, Nuno Corte-Real, Isabel Menezes, and Antonio Fonseca	Positive youth development through sport and physical education: a systematic review of empirical research conducted with grade 5 to 12 children and youth	2023	1

**Figure 2.** Citation Trends Based on Article Publication

The highest citations (40 citations) are in the article “ The effect of sport-based interventions on positive youth development: a systematic review and meta-analysis” oleh (Mark W. Bruner , Colin D. McLaren , Jordan T. Sutcliffe , Lauren A. Gardner , David R. Lubans, 2021). Meanwhile, the article with the lowest citations (1 citation) is the article entitled “Challenges in Promoting Positive Youth Development through Sport” (Palheta & , Vitor Ciampolini , Fernando Santos, Sergio José Ibáñez, 2022) and the article entitled “Positive youth development through sport and physical education: a systematic review of empirical research conducted with grade 5 to 12 children and youth” (Luís Almeida, Teresa Dias, Nuno Corte-Real, 2023).

Visualization of the Positive Youth Development Through Sport theme

After the author collected data from Publish or Perish, the data was then entered into the VOSviewer application to map PYD through Sports. From the mapping results, 24 keywords were found that were relevant to the data collected by the author. The selection of these keywords was based on relevance to the research objectives. This number was obtained after going through a mapping process using the application, which resulted in six clusters as explained below. Each cluster is separated and marked with different colors. Each item found is related to the integration of character education in physical education. The mapping data is divided into 6 clusters, as follows:

- 1) Cluster 1 consists of 5 items and is marked in red consisting of: physical education, school sport, students, youth development, youth sport.
- 2) Cluster 2 consists of 4 items and is colored green consisting of: adolescence, coach, football, gender.
- 3) Cluster 3 consists of 4 items and is colored light blue consisting of: meta-analysis, organized sport, review, youth sport interventions.
- 4) Cluster 4 consists of 4 items and is colored yellow consisting of: nrc 8 setting, positive youth development, residential sport camp, summer camp.
- 5) Cluster 5 consists of 4 items and is colored purple consisting of field hockey, life skills, mental health, youth coaches.
- 6) Cluster 6 consists of 3 items and is colored turquoise consisting of: coach education, communication effectiveness, youth sport leader.

The relationship between one item and another can be seen in each cluster. (Lardika et al., 2023). Each cluster is labeled with a colored circle, and the size of the circle varies depending on the frequency of occurrence of each item. Larger circles indicate more significant relationships, based on the frequency of the term in the title and abstract. The size of the label also increases as the term usage increases. The three basic components of the mapping visualization in this study are Network Visualization, Overlay Visualization, and Density Visualization: Network Visualization positive youth development through sport (**Figure 3**), Overlay Visualization positive youth development through sport (**Figure 4**), and Density Visualization positive youth development through sport (**Figure 5**).



Figure 3. Network Visualization positive youth development through sport



Figure 4. Overlay Visualization positive youth development through sport

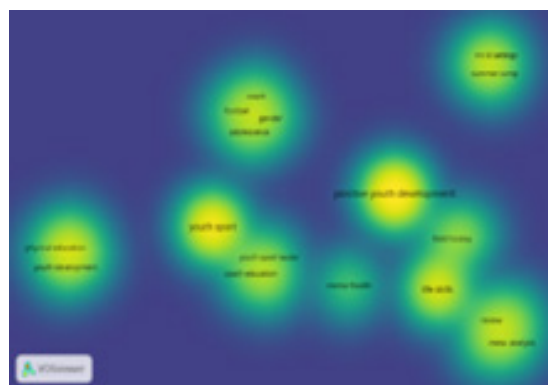


Figure 5. Density Visualization positive youth development through sport

The color in the Density Visualization indicates the number of items around the point. The greater the number of items around the dot and the higher the weight of the surrounding items, the closer to the color of the yellow dot. Conversely, the smaller the number of items around the dot and the lower the weight of the surrounding items, the closer the color of the dot is to blue (Kahfi et al., 2022).

The results of the analysis show that in the last ten years, there have only been twelve articles that have been successfully checked from Scopus

(journal articles), as seen in Figure 1. The articles were published starting in 2016 where the article was published in the International Journal of Sport and Exercise Psychology journal from Taylor and France with a total of 39 citations. Then followed in 2017 in the Journal of Adolescent Research with 31 citations. In 2018, there were two articles from the Strategies journal with 5 citations and the Journal of Sport and Exercise Psychology with 10 citations. In 2019, two articles were published in the Journal of Sports Sciences with 17 citations and the Quest Journal with 38 citations. In 2020, there was one article published in Managing Sport and Leisure with 16 citations. In 2021, there were two articles published in the Journal of Sport Psychology in Action with 16 citations and the International Review of Sport and Exercise Psychology with 40 citations. In 2022, there was one journal published in Sustainability with 1 citation. Finally, in 2023, there were two articles published, namely in Physical Education and Sport Pedagogy with 1 citation and in the journal Qualitative Research in Sport, Exercise and Health with 38 citations. This shows that research related to PYD through Sports always exists every year and shows that the opportunity for other research on PYD through sports is very large and can still be linked to other variables.

The highest citation (40 citations) is in the article "The effect of sport-based interventions on positive youth development: a systematic review and meta-analysis" by (Mark W. Bruner, Colin D. McLaren, Jordan T. Sutcliffe, Lauren A. Gardner, David R. Lubans, 2021). Meanwhile, the article with the lowest citation (1 citation) is the article entitled "Challenges in Promoting Positive Youth Development through Sport" (Palheta & Vitor Ciampolini, Fernando Santos, Sergio José Ibáñez, 2022) and the article entitled "Positive youth development through sport and physical education: a systematic review of empirical research conducted with grade 5 to 12 children and youth" (Luís Almeida, Teresa Dias, Nuno Cortes-Real, 2023).

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tion of character education in physical education.

Based on the results of metrics and visualizations from VOSviewer, this study concludes that publications on PYD in sports over the past ten years are still very limited. However, PYD through sports has great potential to diagnose, organize, and develop initiatives that support sports activities that are beneficial to youth development. Data mapping analysis of the collected articles shows that the keyword "positive youth development through sport" is still rarely associated with other terms. Therefore, this can be a basis for new research on PYD through sports and its impact on other terms.

CONCLUSION

The game-based learning method has proven to be effective in improving students' throwing and catching skills. This can be seen from the significant increase in the percentage of students who have completed both skills from the pre-test to the second cycle. Although there are several inhibiting factors such as lack of facilities, differences in physical abilities, limited time, and potential injuries, the benefits obtained are much greater. Support from teachers, interesting learning methods, and regular feedback play a major role in the process of improving skills. Thus, an interactive and fun learning approach such as games can be an effective solution to develop students' physical skills.

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