SUSTAINABLE DEVELOPMENT OF CHARACTER EDUCATION IN PHYSICAL EDUCATION: BIBLIOMETRIC ANALYSIS USING VOSVIEWER

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ABSTRACT

Objective: This study uses a bibliometric approach and the VOSviewer program to assess the growth of research papers on incorporating character education into physical education so that other researchers can get information and develop it. For theme study next still in scope education character through education physica.

Method: Reference sample article totaling 999 articles with using the Publish or Perish application sourced from the Google Scholar database. The title and abstract of the article serve as guidelines in carrying out the process of searching for the keywords character education and physical education.

Results: The data search found 999 relevant articles published in 2012 to 2022. This study used 3 keywords, namely: integration, character education, and physical education. The term character education has 141 links, and a total of 459 strengths. The term physical education has 220 links, and a total of 950 strengths. And the integration term has 264 links, and a total of 2,919 strengths.

Conclusion: The development of the number of publications that integrate character education into physical education over the last 11 years has experienced fluctuations, namely in 2012-2015 it has increased. From 2012 there were 98 publications, to 113 publications in 2013, 108 publications in 2014, and 120 publications in 2015. Before finally experiencing a decline in publications in 2016-2022 (sequentially 111, 103, 115, 93, 72, 33, 33 publications annually). So that the research opportunities for character education in physical education are still very likely to be researched and associated with other terms.

Keywords: bibliometrics, sustainable development, physical education, VOSviewer.

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DESENVOLVIMENTO SUSTENTÁVEL DA EDUCAÇÃO DO CARÁTER NA EDUCAÇÃO FÍSICA: ANÁLISE BIBLIOMÉTRICA USANDO VOSVIEWER

RESUMO

Objetivo: Este estudo utiliza uma abordagem bibliométrica e o programa VOSviewer para avaliar o crescimento de trabalhos de pesquisa sobre a incorporação da educação do caráter na educação física para que outros pesquisadores possam obter informações e desenvolvê-la. Para estudo do tema a seguir ainda no escopo educação do caráter através da educação física.

Método: Artigo de amostra de referência totalizando 999 artigos usando o aplicativo Publish or Perish proveniente do banco de dados do Google Scholar. O título e o resumo do artigo servem de orientação na realização do processo de busca pelas palavras-chave educação do caráter e educação física.

Resultados: A busca de dados encontrou 999 artigos relevantes publicados no período de 2012 a 2022. Este estudo utilizou 3 palavras-chave, a saber: integração, educação do caráter e educação física. O termo educação do caráter possui 141 links e um total de 459 pontos fortes. O termo educação física possui 220 vínculos e um total de 950 pontos fortes. E o termo de integração possui 264 links e um total de 2.919 pontos fortes.


Palavras-chave: bibliometria, desenvolvimento sustentável, educação física, VOSviewer.

1 INTRODUCTION

Education is the first step to create superior and advanced human beings. Superior and advanced humans are not only limited to improving students' academic abilities, but what is far more important is preparing students to have superior soft skills (Zainudin Mapong, 2023). School is a place for sowing cultural seeds in the form of character from an early age (Althof & Berkowitz, 2006).

Character is a basic moral concept related to the values of honesty, responsibility, caring, fairness, and respect for oneself and others. (Heidari et al., 2016). Meanwhile, character education is an approach designed systematically with the aim of introducing and teaching moral values (Birhan et al., 2021). Physical education is essentially...
education through physical activity that combines education and experience (Liu et al., 2022). Physical education focuses on all forms of sports that require large muscles (gross motor), on physical activity in games and sports, and on basic body functions. Meanwhile, the nature of character education in physical education lies in the affective domain.

Research on Character Education Models in Physical Education (Moatidou et al., 2007), (Musril, 2021), (Jeon et al., 2021). In addition, various studies using bibliometric analysis have been carried out, for example: teacher education research (Ananin & Lovakov, 2022), nursing education (Cant et al., 2022), physical therapy interventions (Carballo et al., 2022), basic education (Aktoprak & Hursen, 2022), tourism education (Menon et al., 2021), language learning (Karakya & Bozkurt., 2022), Instagram research (Rejeb et al., 2022), (Puriwat & Tripopsakul, 2022), transportation research (Bao et al., 2023).

However, mapping research using bibliometric analysis as a determinant of future research development has never been carried out on character education physical education subjects. Specifically, using the VOSviewer tool, a bibliometric analysis of research over the last 11 years, or the period 2012 to 2022.

Based on the existing conditions, this research is devoted to map bibliometric analysis of published articles by Google Scholar with the help of the VOSviewer application. This research was conducted with the aim of becoming a reference for further researchers in determining the theme study especially in research in the field of physical education to improve character.

1.1 RESEARCH PURPOSES

Research objectives This that is try analyze and map development publication with theme integration education character in education physical so that researcher furthermore own chance For do study deep in field another term with specification increase various character through education physical ( in matter education physical made as an enhancement medium character ).

1.2 RESEARCH QUESTION

How mapping integration publication education character in education physical?
1.3 JUSTIFICATION

Various bibliometric research already discussed with various theme, however deep bibliometric research theme integration education character in education physical so far This Still Not yet seen. Besides that study, this make an effort for displays research trends latest and possible other necessary terms for investigated in research next.

2 THEORETICAL FRAMEWORK

Education is considered as a center of excellence in preparing superior human characters (Rokhman et al., 2014). Education through learning in schools must be able to integrate intellectual elements, attitudes and skills into a unified whole (Heidari et al., 2016). Failure to strengthen character for students both in the community and at school will have a negative impact on the younger generation in the future. By educational institutions (school) is believed to be a place for sowing the seeds of culture since childhood (Althof & Berkowitz, 2006). The process of preparing superior and competitive human resources is formed from quality education that is integrated with character education (Mei et al., 2014).

2.1 CHARACTER EDUCATION

Character is a basic moral concept related to the values of honesty, responsibility, caring, fairness, and respect for oneself and others (Heidari et al., 2016). Moral education is education with the aim of promoting moral development and strengthening student character. (Han, 2014). Character is a combination of virtues and personality values (Seijts & Milani, 2022).

But when character is combined with “education”, it finds a more specific meaning. Currently, character education means a systematic, comprehensive and planned approach to teaching moral values. Character education as a deliberate effort to help people understand, care about, and act on core ethical values. Edington believes that character education means helping students to internalize moral values through example, so that without the presence of parents and teachers they are able and willing to make wise choices and be expressed in action (Edgington, 2002). Character education is an approach designed systematically with the aim of introducing and teaching moral values (Birhan et al., 2021).
2.2 PHYSICAL EDUCATION

Physical education is essentially education through physical activity as an instrument to achieve educational goals (Purwanto & Susanto, 2018). According to this perspective, physical education is connected to brain, intellectual, emotional, and aesthetic learning as well as interpersonal interactions, group behavior, and emotional responses. Physical education concentrates on all forms of exercise that use large muscles (gross motor), on physical movements in games and sports, and on basic body functions. As a result of a more complete physical learning experience in all fields (human development), physical education shows characteristics that are not found in other topics (Ibtehal & Maen, 2023).

2.3 BIBLIOMETRIC

Bibliometrics is a method for learning structure scientific in analysis quote based technology. Bibliometrics work for explain development latest related topics something new and interesting (Borgman & Furner, 2002). The bibliometric method can give information about influence and impact article to study next (Cooper, 2015). Bibliometrics give different opportunities for overcome lack analysis quotes (Kurtz & Bollen, 2011).

3 METHODOLOGY

The article data from this study were taken from the results of publications in published journals by Google Scholar. Google Scholar indexer was chosen because Google Scholar data is open source (Hasana et al, 2022). The data search process uses the Publish or Perish application. Use this app aims to analyze the literature review of the selected theme.

This research was conducted through several stages, namely:

1) Collect published data with the help of publish or perish tools,
2) For processing bibliometric data for articles that have been collected using the Microsoft Excel application,
3) The computational mapping analysis process for bibliometric publication data uses the VOSviewer application. And
4) Analysis of the results of the analysis based on computational mapping.
Publish or Perish articles, is carried out to filter the results of publications with use term "Character Education and Physical Education" according to the needs of the theme publication. The articles used are articles that have published from 2012 to 2022. Data collection was carried out in September 2022. Articles that had been collected and met the analysis criteria were then exported in two file formats, namely: research information system (.ris) and comma-separated values (*.ris). csv). The Vosviewer application is also used to visualize and evaluate trends using bibliometric mapping.

The VOSviewer application is used to create 3 types of publication variations, namely the network visualization form, the density visualization form, and the overlay visualization form according to the existing network between items. When creating a bibliometric map, the number of keywords in i adjust minimum 3 times. So, there are some terms (keywords) that are not worth eliminating.

4 RESULTS AND DISCUSSION
4.1 PUBLICATION DATA RESULTS

Google Scholar's search engine publish or destroy management software generated 999 articles with data that matched the research criteria. obtain article data in the form of metadata, such as title, author, publisher, theme, number of citations, article links, and related URLs. An example of articles from publications used in the VOSviewer analysis of this study is shown in Table 1. The sample article data covering up to eight articles received the most citations.

<table>
<thead>
<tr>
<th>NO</th>
<th>Writer</th>
<th>Title</th>
<th>Year</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AJ Visek, SM Achrati, HM Mannix</td>
<td>Fun integration theory: to sustain children's and youth's sports participation</td>
<td>2015</td>
<td>263</td>
</tr>
<tr>
<td>2</td>
<td>JCK Wang, AJS Morin</td>
<td>Profile of student motivation in the context of physical education</td>
<td>2016</td>
<td>111</td>
</tr>
<tr>
<td>3</td>
<td>DH Alcala, AH Garijo</td>
<td>Teaching games for understanding: A comprehensive approach to increasing student motivation in physical education</td>
<td>2017</td>
<td>88</td>
</tr>
<tr>
<td>4</td>
<td>C Bean, T Forneris</td>
<td>Is life skills development a by-product of sports participation? Perceptions of youth sports coaches</td>
<td>2017</td>
<td>85</td>
</tr>
<tr>
<td>5</td>
<td>S Ullrich-France, MH McDonough</td>
<td>Correlations of long-term participation in physical activity-based positive youth development programs for low-income youth: Sustained engagement and psychosocial…</td>
<td>2013</td>
<td>82</td>
</tr>
<tr>
<td>6</td>
<td>F Santos, M Camiré</td>
<td>The youth sports coach's perspective on youth development is positive and of value in mainstream coach education courses</td>
<td>2017</td>
<td>57</td>
</tr>
<tr>
<td>7</td>
<td>SC Darnell, M Dao</td>
<td>Considering sport for development and peace through a capability approach</td>
<td>2017</td>
<td>52</td>
</tr>
</tbody>
</table>
4.2 DEVELOPMENT OF RESEARCH IN THE FIELD OF CHARACTER EDUCATION AND PHYSICAL EDUCATION

Table 2 shows the evolution of character education and physical education research published by Google Scholar. Overall, 999 publications were published between 2012 and 2022; more specifically, in 2012 there were 98 articles, in 2013 there were 113 articles, in 2014 there were 108 articles, in 2015 there were 120 articles, and in 2016 there were 111 articles. In 2017 there were 103 articles, in 2018 there were 115 articles, in 2019 there were 93 articles, and in 2019 there were 72 articles. Articles in 2020, 33 articles in 2021, and 33 articles in 2022. Based on the number of publications can be known research in the field of integrating character education into physical education is still in the poor category and continues to decline. in the number of publications especially in the last 11 years (2012-2022).

Figure 1 depicts the evolution of research into integrating character education into physical education over the last 11 years, from 2012 to 2022. Based on Figure 1, more diverse studies were developed in 2012–2013. This increase can be seen from 90 publications in 2012 and an increase of 113 publications in 2013. Before finally decreasing the number of publications in 2014 to 108 publications and increasing again in 2015 to 120 publications, before finally decreasing again until 2022, as seen from In 2016 there were 111 publications, in 2017 there were 103 publications, in 2018 there were 115 publications, in 2019 there were 93 publications, in 2020 there were 72 publications, in 2021 there were 33 publications, and in 2022 there were 72 publications. are 33 publications.
Table 2. Development of Character Education and Physical Education Research

<table>
<thead>
<tr>
<th>Publication Year</th>
<th>Number of Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>98</td>
</tr>
<tr>
<td>2013</td>
<td>113</td>
</tr>
<tr>
<td>2014</td>
<td>108</td>
</tr>
<tr>
<td>2015</td>
<td>120</td>
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<tr>
<td>2016</td>
<td>111</td>
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<tr>
<td>2017</td>
<td>103</td>
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<tr>
<td>2018</td>
<td>115</td>
</tr>
<tr>
<td>2019</td>
<td>93</td>
</tr>
<tr>
<td>2020</td>
<td>72</td>
</tr>
<tr>
<td>2021</td>
<td>33</td>
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<tr>
<td>2022</td>
<td>33</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>99.9</strong></td>
</tr>
</tbody>
</table>

Source: Publish or Perish software (2022)

4.3 VISUALIZATION OF CHARACTER EDUCATION AND PHYSICAL EDUCATION THEMES USING VOSVIEWER

Mapping is done in the form of based article data the VOSviewer application. Based on the mapping found 268 items. Each item found relates to the integration of character education in physical education, the data mapping is divided into 7 clusters, as following:

1) Cluster 1 has 50 items and is marked in red, consisting of: abilities, age, association, behavior, benefits, challenges, classes, components, content, context, control, dimensions, PAUD, educators, effective integration, elements, environment, education environment, proof, experience, full integration, future, group, hands, insight, interaction, deficiency, student, management, medical
education, medium, opportunity, outcome, patient, perception, achievement, problem, professional development, questions, relationships, systems, systematic reviews, technology, technology integration, tools, training, twitter, usage, and virtual reality.

2) Cluster 2 has 49 items and is marked in green, consisting of: access, assessment, effort, author, case, change, character, citizenship, civic education, collaboration, concept, education system, effort, Europe, European integration, European Union, government, idea, impact, importance, inclusion, individual, information, integration, islamic education, issue, nation, number, order, share, participants, point, policy, process, qualitative study, role, social integration, community, country, story, students, sustainability, terms, themes, transitions, views, world, years, and youth.

3) Cluster 3 has 43 items and is marked in light blue, consisting of: addition, development, class, trainer education, coaching, competency, attention, confidence, condition, course, development, disability, education, effect, efficacy, evaluation, field, establishment, health, inclusive education, institution, integration process, language, leadership, meaningful, music, necessary, people, physical activity, physical education, physical education class, physical education teacher, principles, projects, reasons, spanish, special education, support, sustainable development, teachers, teacher education, universities.

4) Cluster 4 has 43 items and is marked in yellow, consisting of: actions, activities, case studies, character education, character strengths, character values, children, society, conditions, covid, culture, diversity, elementary school, family, general education, globalization, purpose, implementation, Indonesia, influence, integrated curriculum, learning process, level, life, local wisdom, organization, parent, positive education, program, relationship, religious education, responsibility, school, sense, social, strategy, strength, subjects, teaching, time, values, methods, and well-being.

5) Cluster 5 has a total of 36 items and is marked in purple, consisting of: approaches, articles, aspects, characteristics, disciplines, English, evolution, examples, focus, frameworks, higher education, implications, innovations, instructions, interventions, knowledge, learning, literature, narrative, overview,
papers, perspective, philosophy, possibility, practice, quality, reflection, research, review, dedication, structure, theory, type, variety, vocational education, and work.

6) Cluster 6 has 32 items and is marked with the color Tosca, consisting of: analysis, field, art, character development, empirical studies, endings, ethics, exploration, forms, games, history, investigations, interests, lessons, martial arts, mathematics, education moral, motivation, nature, understanding, physical education context, place, researcher, science, education, self, Singapore, sport, stem, study, understanding, and value education.

7) Cluster 7 has 15 items and is marked in orange, which consists of: application, attitudes, curriculum, cyber-physical systems, data, effectiveness, energy, factors, models, basic education, reality, resources, skills, systematic literature review, and objects.

The link between one item and other items can be seen in each cluster (Tarantino et al. 2022). Each phrase is labeled with a colored circle. Because of how often each tribe appears, the size of the circle varies for each tribe. The form of the term in the form of a circle shows a good (very good) relationship with the frequent use of the term in the title and abstract. The size of the label will increase the more the term is used. The three basic components of mapping visualization that can be mapped in this study are network visualization, density visualization, and overlay visualization: character education network visualization (figure 2), physical education (figure 3), and integration (figure 4), density visualization (figure 5), overlay visualization of character education and physical education (figure 6).

Figure 2. Visualization network term education character

Source: VOSviewer, 2022

Figure 3. Visualization network term education physical

Source: VOSviewer, 2022
Figure 4. Visualization network term integration education character and education physical

Source: VOSviewer, 2022

Figure 4. Visualization density term education character and education physical

Source: VOSviewer, 2022
Figure 2 shows the relationship between character education and other terms. Character education is on cluster 4 is a total of 141 links, a total of 459 link strengths, and 74 events. Figure 3 shows the relationship between physical education and other terms. Physical Education is located in cluster 3 is a total of 220 links, 950 total link strengths, and 150 events. Figure 4 shows the integration between character education in physical education (Nurafiati et al., 2021), (Hackett, 2007). This integration is rolled into cluster 2, with a total of 264 links, 2,919 total link strengths, and 530 events.

The density visualization is shown in Figure 5. The density visualization also shows that the diameter of the circle label increases with the brightness of the yellow hue, indicating that the term is used more frequently. This implies that research trends Lots researched. Conversely, if the color term fades or approaches color background behind dark, it can be concluded that research on the term is still a little (old). Referring to Figure 5, several terms such as: integration, education, character, model, have a high number of studies. However, the integration of character education into physical education is still lacking (Muhtar et al., 2021).

Figure 6 shows an overlay visualization on character education and physical education research. Figure 6 shows the novelty of the research in term form (Kaku, 2010).
And shows that studies on integration, character education, and physical education have been carried out from 2018 to 2022. This shows that the development of topics on integration, character education, and physical education is still lacking. Therefore, we can make recent research on the integration of character education in physical education by using other terms.

The data above shows that the terms character education and physical education seem to have little connection with other terms (Adang Suherman, 2016). In addition to the results of the mapping analysis, character education has 141 links and is connected to 17 items. The term physical education has 220 links and is related to 24 items. The integration term has 264 links and is related to 54 items. So that it can be concluded, the terms physical education and character education are still open wide to be researched and combined in other terms, thus enabling the acquisition of new research ideas.

Based on the results of data mapping analysis from the articles that have been collected, it can be used as a reference that the keyword physical education is rarely associated with other terms. In this case, new research on physical education and its impact on other terms can be sought.

5 CONCLUSION

This research attempts deliver results computational mapping of bibliometric data published in research articles. The publication topic chosen in this research is "integration, character education and physical education". The article data used comes from a Google Scholar indexed database through the Publish or Perish application. Literature data taken in this study consisted of titles and abstracts. From the search results obtained 999 relevant articles published from 2012 to 2022. The results show that research on the integration of character education in physical education has increased from 2012 to 2015, but has decreased in publications from 2016 to 2016. In 2022 So that the research opportunities for character education and physical education are still very likely to be researched and associated with other terms.
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