



## **Trends and patterns of 2013 curriculum research in physical education: Bibliometric analysis from 2013-2020**

### **Tren dan pola penelitian kurikulum 2013 dalam pendidikan jasmani: Analisis bibliometrik dari tahun 2013-2020**

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#### **ABSTRACT**

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The implementation of the 2013 curriculum in physical education learning in schools is an issue that has emerged in recent years. The main objective of this study is to conduct a systematic analysis of trending research literature, especially on the topic of the 2013 curriculum in physical education, using bibliometric analysis. This study uses a bibliometric analysis approach with the help of the VOSViewer application. The articles' search results show that the study of the 2013 curriculum in physical education totaled 106 articles which were published from 2013-2020 using three databases, namely Scopus, Google Scholar and Dimensions. Then, the researchers conducted a filter that was only limited to journal articles and proceedings. And checked for duplication of articles. Based on the checking, it was found that the same 8 articles were published in the three databases, so that the final result was 89 articles. Based on the VOSViewer mapping, the findings reveal that: the number of publications from 2013 to 2020 has increased; of the 89 published articles, all of the authors are from the State of Indonesia, because the topics discussed (Curriculum 2013) are the education curriculum in Indonesia; M. E. Winarno (State University of Malang) was the author with the most publications (6 documents); the sources that published the most articles were Advances in Social Science, Education and Humanities Research (12 documents); the most influential article (77 citations) is entitled "Management of Curriculum Implementation: Strategies for Strengthening the Implementation of the 2013 Curriculum", and an interesting article is discussed about aspects of assessment in the 2013 curriculum; Keywords that often appear are "physical education" and "curriculum 2013". For further researchers, they can see interesting topics to be studied for the future.

**Keywords:** research mapping; 2013 curriculum; physical education; bibliometrics.

Penerapan kurikulum 2013 pada pembelajaran pendidikan jasmani di sekolah merupakan isu yang dimunculkan beberapa tahun belakang ini. Tujuan utama dari penelitian ini adalah melakukan analisis sistematis terhadap literatur penelitian yang sedang tren khususnya pada topik kurikulum 2013 dalam pendidikan jasmani menggunakan analisis bibliometrik. Penelitian ini menggunakan pendekatan analisis bibliometrik dengan bantuan aplikasi VOSViewer. Hasil pencarian artikel menunjukkan bahwa studi tentang kurikulum 2013 dalam pendidikan jasmani berjumlah 106 artikel yang mulai dipublikasikan dari tahun 2013-2020 dengan menggunakan tiga database yakni *Scopus*, *Google Scholar* dan *Dimensions*. kemudian, peneliti melakukan filter yang hanya dibatasi pada artikel jurnal dan prosiding. Dan melakukan pengecekan duplikasi artikel. Berdasarkan pengecekan, ditemukan 8 artikel yang sama dan dipublikasikan pada ke tiga database tersebut, sehingga didapati hasil akhir sebanyak 89 artikel. Berdasarkan pemetaan VOSViewer, temuan mengungkapkan bahwa: jumlah publikasi dari tahun 2013 ke tahun 2020 telah meningkat; dari 89 artikel yang diterbitkan, semua penulisnya berasal dari Negara Indonesia, karena topik yang dibahas (Kurikulum 2013) merupakan



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kurikulum pendidikan yang ada di Indonesia; M. E. Winarno (Universitas Negeri Malang) merupakan penulis yang terbanyak melakukan publikasi (6 dokumen); sumber yang paling banyak menerbitkan artikel yaitu *Advances in Social Science, Education and Humanities Research* (12 dokumen); artikel yang paling berpengaruh (77 kutipan) yaitu berjudul "Manajemen Implementasi Kurikulum: Strategi Penguatan Implementasi Kurikulum 2013", dan artikel yang menarik dibahas yaitu tentang aspek penilaian dalam kurikulum 2013; kata kunci yang sering muncul yaitu "physical education" dan "curriculum 2013". Bagi peneliti selanjutnya dapat melihat topik yang menarik diteliti untuk masa depan.

**Kata kunci:** pemetaan penelitian; kurikulum 2013; pendidikan jasmani; bibliometrik.

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## INTRODUCTION

Curriculum implementation is one of the most important problems in the curriculum cycle (Alshammari, 2013; Aytan, 2016; Suyanto, 2018). Entering the middle of 2013, the world of education in Indonesia was faced with a very important national policy, namely a change in the curriculum from KTSP to 2013 Curriculum (Katuuk, 2014; Mahendra, 2014; Mustafa & Dwiyogo, 2020). The issuance of the 2013 Curriculum for all elementary and high school education unit is one of the central and strategic steps in the framework of character strengthening towards a civilized Indonesian nation (Shandi, 2018). Various parties have analyzed that it was necessary to apply the 2013 Curriculum in schools (Pambudi, 2014). The 2013 curriculum focuses on the use of a scientific approach, authentic assessment and integrative thematic in learning (Liana, 2020). As stated by Aji and Winarno (2016), that the 2013 curriculum brings fundamental changes to the teachers role in learning, especially physical education. Physical education is the main area of learning in the curriculum that focuses on developing the skills and movement concepts that the students need to participate in physical activities with competence and confidence (Lynch, 2019).

Many researchers have studied the 2013 curriculum in physical education learning (Hardiyono et al., 2021; Kurniawan, 2015; Nugroho et al., 2018; Rahardyan & Purnama, 2020; Suherman, 2019; Syarif et al., 2019). This 2013 curriculum research tends to discuss about evaluation of the 2013 curriculum (Alaswati et al., 2016; Muslimin & Destriana, 2020; Octaviansyah et al., 2015; Rahardyan & Purnama, 2020), implementation of the 2013 curriculum in schools (Andika et al., 2013; Badu et al., 2021; Cahyono et al., 2019; Darmawati, 2014; Fauzi, 2019; Nico & Zarwan, 2019; Pangaribuan & Aufan, 2020; Syarif et al., 2019), analysis of curriculum change (Yulianto et al.,

2017), teaching style analysis in the 2013 curriculum (Pambudi, 2014), assessment of the 2013 curriculum (Marpaung et al., 2019; Mustafa, 2021; Winarno et al., 2019), the impact of changes to the 2013 curriculum (Widiyono & Tandiyo, 2015), and the effectiveness of learning time of physical education in the 2013 curriculum (Hakim et al., 2020; Rahmi et al., 2020).

The development of the 2013 curriculum research in physical education from the past until now is quite good, especially since the change in the curriculum from KTSP to the 2013 curriculum. This is due to many problems felt by physical education teachers after the 2013 curriculum was implemented. Those problems are still many physical education teachers who do not understand the 2013 curriculum (Eksanurianto et al., 2021), the lack of teacher readiness in implementing it, including the readiness of supporting aspects such as teacher handbooks, student handbooks, related learning equipment and media, and other infrastructure at school (Mahendra, 2014), Teachers find it difficult to divide time between the implementation of learning and administration, and teachers have difficulty in making assessments because there are quite a lot of assessments (Liana, 2020).

Based on these problems, Curriculum changes are one of the triggers for problems in schools, especially in physical education subject, so that students, teachers, and lecturers are actively involved in conducting research to solve the occurring problems (Hanief et al., 2021). Dewi (2021) also stated in her research findings, that curriculum reform has not provided substantial results in term of improving learning outcomes. However, the increase in research productivity that discusses the 2013 curriculum and physical education has never been thoroughly mapped using the bibliometric method, so this is one of the gaps that can be developed as well as the reason why this study is important. This bibliometric study is an objective and reliable resource that offers a mapping of research area, allowing a wider coverage of selected study (Hernández-Torrano et al., 2020).

Therefore, this study aims to examine the development of scientific publications and to map the 2013 curriculum research in physical education. The research process focused on the following study questions: (1) How is the productivity of 2013 curriculum publications in physical education? (2) What are the most influential journals, authors, and articles in the area of the 2013 curriculum in physical education? (3) What are the keywords that often appear in the 2013 curriculum in physical education?

As far as it is concerned, this is the first study to address this area of research from a bibliometric approach. No one has yet identified a bibliometric study of the 2013 curriculum in physical education. In doing so, the researchers fill in the gaps and open up perspectives for future studies. By providing an objective and up-to-date overview of the 2013 curriculum and

physical education literature based on bibliometric analysis and visualization, the researchers fulfill the need of other researchers, teacher educators and practitioners to obtain well-documented and well-informed information and even to develop ideas for their future research.

## **METHOD**

This study used a bibliometric analysis approach with the help of the VOSViewer application. In accordance with the objectives of this study, a systematic search was conducted using the Scopus, Google Scholar and Dimensions databases. In obtaining the article metadata, the researcher conducted a phrase search on September 29, 2021, including the search for the title of "2013 curriculum" AND "physical education" AND "2013 curriculum" AND "physical education". There were 106 articles published and found using three databases namely the Scopus, Google Scholar and Dimensions. The details of the articles found are: 5 articles published in the Scopus database, 80 articles published in the Google Scholar database, 31 articles published in the Dimensions database. Then, the researcher put all the articles into Mendeley and checked for duplication of the articles. Based on the checking, it was found 8 similar articles and were published in the three databases. So that the final result was 89 articles. The researchers limited the source of articles which were only from journals and proceedings and the range of publication years of the articles used were from 2013-2020.

The researchers mapped key contributors (author, university, and source name), applied keyword occurrence analysis to find out publication trends, and tracked the main themes or topics that emerged in the publication. To present the data, the researchers used data visualization with the help of the VOSViewer application (Van Eck & Waltman, 2019). The researchers used several parameters in VOSViewer to obtain article metadata, including: (1) Type of analysis (Co-occurrence analysis); (2) Unit of analysis (All keywords); (3) Method of calculation (Full counting); and (4) Minimum number of author documents (2 documents) (Jeong & Koo, 2016).

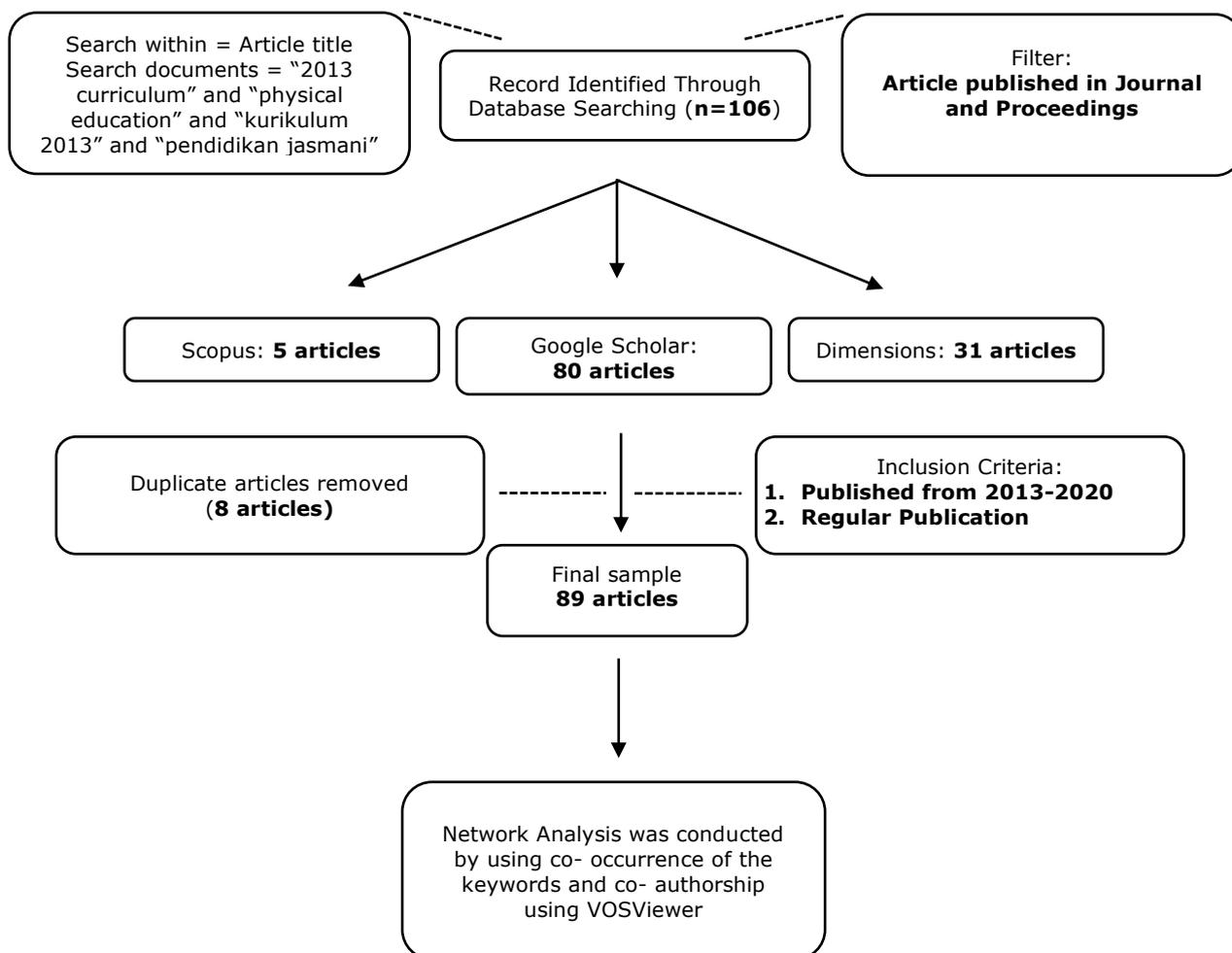


Figure 1. Article Metadata Search Design

## RESULTS AND DISCUSSION

### Research result

This section consists of the results of the bibliometric analysis according to the research questions. *First*, the researchers presented a survey of the literature focusing on its evolution over the time, and contributions in the field according to country, organization, and document type. *Second*, the researchers examined the most influential journals, leading authors, and papers cited on scholarly works. *Third*, the researchers looked at the analysis of collaboration pattern between authors and countries using co-authorship analysis, on existing connections between authors or journals using co-citation analysis, and between terms or keywords using co-word analysis.

## Productivity of 2013 Curriculum Publications in Physical Education

The first article discussing the 2013 curriculum in physical education was published in 2013, and there was only 1 article title discussed. The development of articles from 2013 - 2020 has increased. There was (1 article) in the 2013, (4 articles) in the 2014, (5 articles) in the 2015, (8 articles) in the 2016, (8 articles) in the 2017, (8 articles) in the 2018, (17 articles) in the 2019, (29 articles) in the 2020. Significant increase was starting from 2018 – 2020 (8 articles-29 articles). Meanwhile, in 2021, the author did not analyze it because 2021 still leaves 3 months, so the search for articles is still not optimal. The dynamic of changes in publication productivity can be seen in Figure 2.

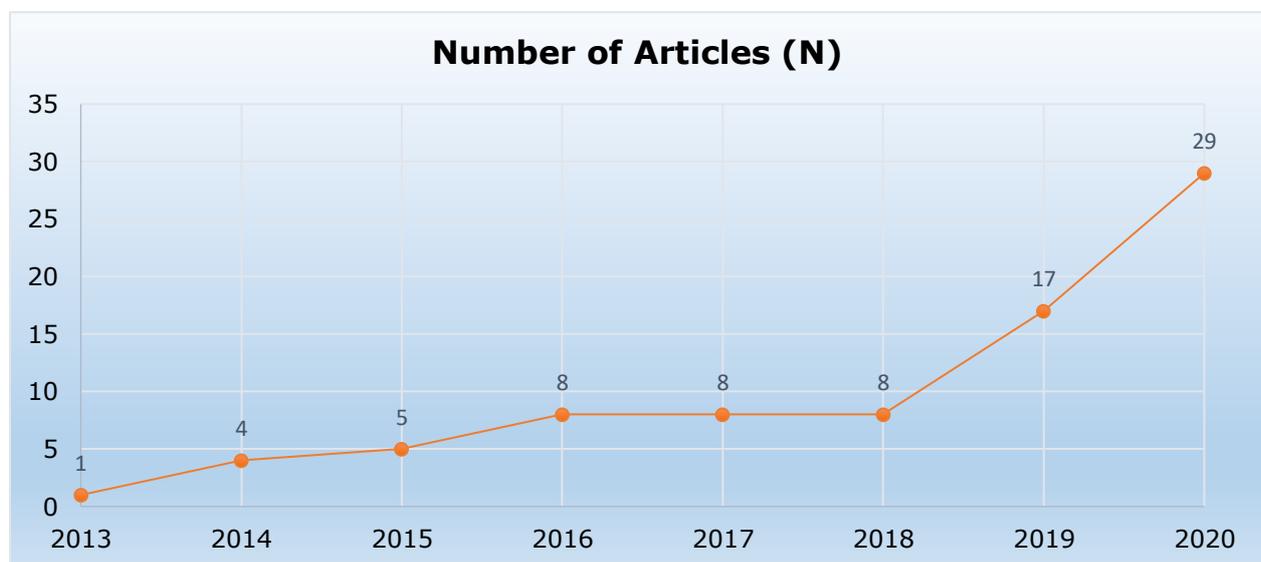


Figure 2. Productivity of Scientific Publications Entitled "2013 Curriculum in Physical Education" From 2013 - 2020

## The Most Influential Journals, Authors, and Articles in the Field of the 2013 Curriculum in Physical Education

Based on research articles published in 89 sources (journals and proceedings). The articles published in various journals and proceedings have different influences, the influence can be seen from the large number and citation of journals, authors and article titles. The following describes the influence of each journal, author and article title in the field of curriculum and physical education.

Table 1. 10 Journals and Proceedings Published on 2013 Curriculum Topics in Physical Education

| <b>Journal and Proceedings</b>                                | <b>Article</b> | <b>%</b> |
|---|----------------|----------|
| Advances in Social Science, Education and Humanities Research | 12             | 33.33    |
| Journal of Physical Education and Sports                      | 4              | 11.11    |
| Journal of Indonesian Physical Education                      | 4              | 11.11    |
| Journal of Education: Theory, Research and Development        | 3              | 8.33     |
| Journal of Sports Pedagogic                                   | 3              | 8.33     |
| Bravo's Journal   | 2              | 5.56     |
| Sports Window   | 2              | 5.56     |
| Journal of Chemical Information and Modeling                  | 2              | 5.56     |
| The Journal of Educational Development                        | 2              | 5.56     |
| Journal of Equatorial Education and Learning                  | 2              | 5.56     |

Table 1 presents the 10 journals and proceedings in terms of the article numbers published on the topic of the 2013 curriculum in physical education. Of the 10 identified, the Proceeding published by Atlantis Press, namely *Advances in Social Science, Education and Humanities Research* contributed the most articles, which were 12 (33.33%), the *Journal of Physical Education and Sports* and the *Journal of Indonesian Physical Education* contributed 4 articles (11, 11%), *Journal of Education: Theory, Research, and Development* and *Journal of Sports Pedagogy* contributed 3 articles (8.33%), furthermore *Bravo's Journal*, *Sport Window*, *Journal of Chemical Information and Modeling*, *The Journal of Educational Development*, *Journal of Equatorial Education and Learning* together contributed 2 articles (5.33%). The Figure 4 presents the 10 leading journals and proceedings in terms of the journal numbers cited on the topic of the 2013 curriculum in physical education. Of the 10 identified, 3 journals have a considerable influence, between 30-88 citations. *Journal of Education: Theory, Research, and Development* was ranked first with 88 citations, *Cakrawala Education* was ranked second with 77 citations, and then *JARTIKA: Journal of Educational Technology Research and Innovation* was ranked third with 30 citations.

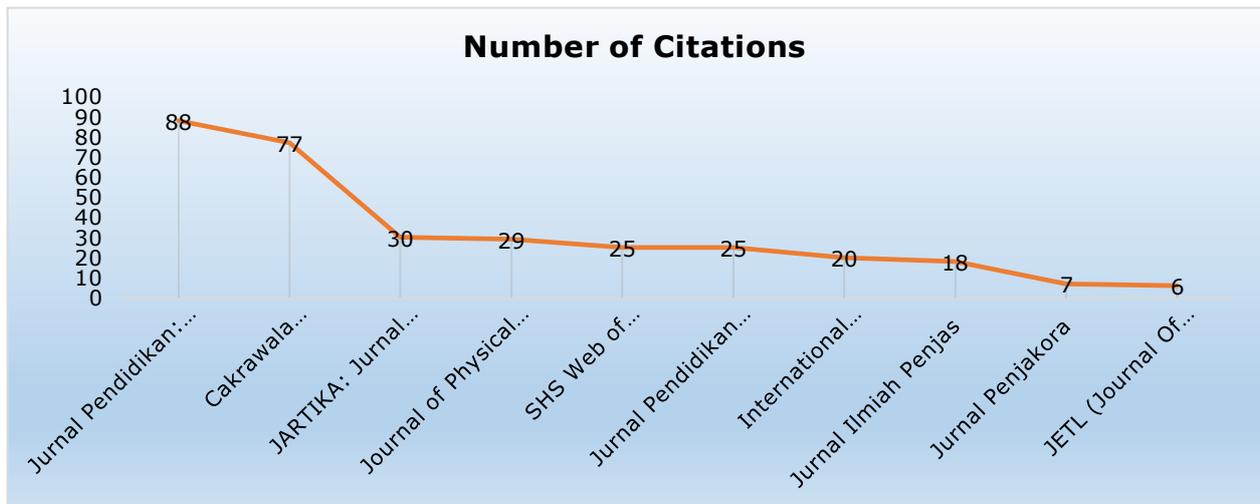


Figure 3. Ten Journals and Proceedings Cited in The Topic of 2013 Curriculum in Physical Education

Next, the researchers used the number of publications and the number of citations as a way to identify the most active and influential researchers in the curriculum and physical education fields. Quotation was used as a measure of influence (Zupic & Cater, 2015). Of the 89 titles published, 193 authors contributed to this field. Of the 193 authors, ME Winarno, (State University of Malang) is the most influential writer in publishing articles (6 articles). More clearly can be seen in Table 2.

Table 2. Most Authors Publish Articles on The Topic of 2013 Curriculum in Physical Education

| Authors                  | Country   | Document |
|--------------------------|-----------|----------|
| Winarno, M. E.           | Indonesia | 6        |
| Mustafa, Pinton Setya    | Indonesia | 5        |
| Dwiyogo, Wasis Djoko     | Indonesia | 2        |
| Hardiyono, Bayu          | Indonesia | 2        |
| Hidasari, Fitriana Puspa | Indonesia | 2        |
| Hudah, Maftukin          | Indonesia | 2        |
| Irianto, Tri             | Indonesia | 2        |
| Kristiyanto, Agus        | Indonesia | 2        |
| Lengkana, Anggi Setia    | Indonesia | 2        |

Seeing the large number of articles published, the researchers were interested to find out which articles have the most influence on the topic of the 2013 curriculum in physical education. Of the 89 titles published in the Scopus, Google Scholar and Dimensions databases, the article entitled "*Management of Curriculum Implementation: Strategies for Strengthening the Implementation of the 2013 Curriculum*" which was written by Deitje Adolfien Katuuk in 2014

was the most cited article with 77 citations. More clearly can be seen in Table 3.

Table 3. Most Cited Articles on The Topic of 2013 Curriculum in Physical Education

| Title  | Writer  | Journal and Proceedings  | citation | Year |
|--|---|--|----------|------|
| Curriculum Implementation Management: Strategy for Strengthening the 2013 Curriculum Implementation (Katuuk, 2014)   | Katuuk, D. A.   | Cakrawala Education  | 77       | 2014 |
| Development of Knowledge Assessment Instruments for Physical, Sports and Health Education (PJOK) subject of VIII Class at Odd Semester (Aji & Winarno, 2016) | Aji, B. S., & Winarno, M. E.  | Journal of Education: Theory, Research and Development JARTIKA       | 52       | 2016 |
| Curriculum for Physical, Sports, and Health Education in Indonesia at the 21st Century (Mustafa & Dwiyogo, 2020)   | Mustafa, P. S., & Dwiyogo, W. D.  | Journal of Educational Technology Research and Innovation            | 30       | 2020 |
| The implementation of character education values in integrated physical education subject in elementary school (Suherman, 2018)                              | Suherman, A.  | SHS Web of Conferences   | 25       | 2018 |
| Assessment of Physical, Sports, and Health Education at State Junior High Schools in Malang City (Mustafa et al., 2019)                                      | Mustafa, P. S., & Winarno, M. E   | Journal of Education: Theory, Research and Development               | 18       | 2019 |
| Evaluation of the Value Educational Implementation in Physical Education Learning (Widiyatmoko & Hudah, 2017)  | Widiyatmoko, F. A., & Hudah, M  | Physical Education Scientific Journal                                | 18       | 2017 |
| Evaluation of the scientific approach application on the physical education learning about basic football passing techniques (Wicaksono et al., 2020)        | Wicaksono, P. N., Kusuma, I. J., Festiawan, R., Widanita, N., & Anggraeni, D. | Journal of Indonesian Physical Education                             | 17       | 2020 |
| Evaluation of the PJOK 2013 Curriculum Learning Implementation (Alaswati et al., 2016)   | Alaswati, S., Rahayu, S., & Rustiana, E. R.                                   | Journal of Physical Education and Sports                             | 17       | 2016 |
| Development of Knowledge Assessment Instruments for Sport and Health Education Subject (PJOK) of XI Class at the Odd Semester (Juniarta & Winarno, 2016)     | Juniarta, A. T., & Winarno, M. E.   | Journal of Education: Theory, Research and Development               | 15       | 2016 |
| Strengthening national character education through physical education: An action research in Indonesia (Suherman et al., 2019)                               | Suherman, A., Supriyadi, T., & Cukarso, S. H. I.                              | International Journal of Learning, Teaching and Educational Research | 12       | 2019 |

## Keywords that often appear in the topic of the 2013 curriculum in physical education

The results of the data visualization analysis using VOSViewer show that the keywords with the highest number of *occurrences* in the research samples were physical education (14), 2013 curriculum 2013 (11), 2013 curriculum (8), implementation (8), curriculum (7), evaluation (7), PJOK (6), learning (5), physical education (5), assessment (4). The top 10 high-frequency keywords and their bibliometric characteristic (including the number of *occurrences* and *total link strength*). Visualization of the item density of high-frequency keywords are presented in Table 4 and Figure 4.

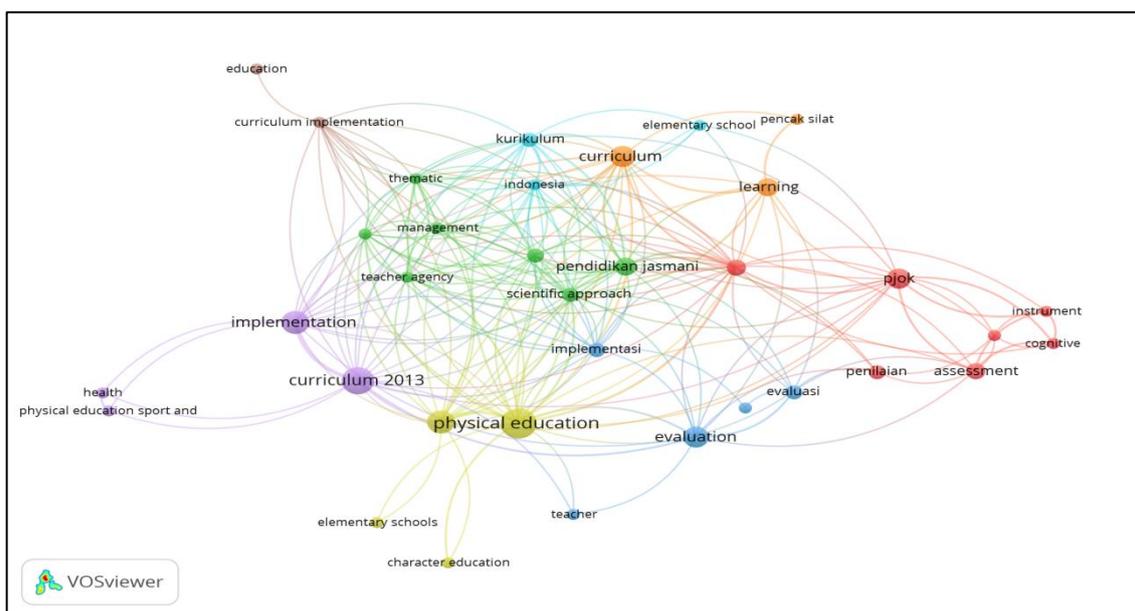


Figure 4. Keywords That Often Appear In The Topic Of 2013 Curriculum in Physical Education

(Out of 383 keywords, 41 met the threshold (minimum number of keyword occurrences: 2)

In Figure 4, the keywords are grouped according to their relevance/relatedness. That is, the keyword network shows the relationship between different research themes (Giannakos et al., 2020). Close relationship is indicated by the presence of lines between keywords, while the size of the colorful circles indicates the number of occurrences of that keyword. Thus, the larger the circle on the keyword, it shows the more frequently that the keyword appears.

Based on the visualization in the Figure 4, it can be identified into 8 thematic clusters, namely: (1) PJOK; (2) physical education; (3) evaluation; (4) physical education; (5) 2013 curriculum; (6) curriculum, (7)

curriculum, (8) curriculum implementation. The keywords in **bold** are the keywords with the highest number of occurrences. To better understand and see the interactions between the topic of the 2013 curriculum in physical education learning, see Table 4.

Table 4. High Frequency Keyword Groups Associated with Publications on the 2013 Curriculum in Physical Education

| Cluster Number/label/Colour                     | Number of Keywords | Keywords (Occurrences)   |
|---|--------------------|--|
| Group 1/ PJOK/red                               | 23                 | <i>assessment (4); cognitive (2); instrument (2); instrument (2); learning (4); assessment (3); <b>PJOK (6)</b></i>  |
| Group 2/ physical education/green               | 19                 | <i>2013 curriculum (3); management (2); <b>physical education (5)</b>; policy enactment (2); scientific approach (3); teacher agency (2); thematic (2)</i> |
| Group 3/ evaluation/blue                        | 17                 | <i>evaluation (3); <b>evaluation (7)</b>; implementation (3); physical education (2); teacher (2)</i>  |
| Group 4/ physical education/yellow              | 28                 | <i>2013 curriculum (8); character education (4); elementary schools (2); <b>physical education (14)</b></i>  |
| Group 5/ 2013 curriculum/purple                 | 23                 | <i><b>curriculum 2013 (11)</b>; health (2); implementation (8); physical education sport and health (2)</i>  |
| Group 6/curriculum/Tosca blue                   | 7                  | <i>elementary school (2); Indonesia (2); curriculum <b>(3)</b></i>   |
| Group 7/ curriculum/Orange                      | 14                 | <i><b>curriculum (7)</b>; learning (5); pencak silat (2)</i>   |
| Group 8/ curriculum implementation/young purple | 4                  | <i>education (2); <b>curriculum implementation (2)</b></i>   |

The VOSViewer application provides a visualization of a growing range of topics from year to year. Figure 5 shows the colors of blue, green, and yellow, which each color indicating the year an article was published. The blue color indicates the beginning of the year of publication, green to yellow indicates the most recent year of publication of an article.

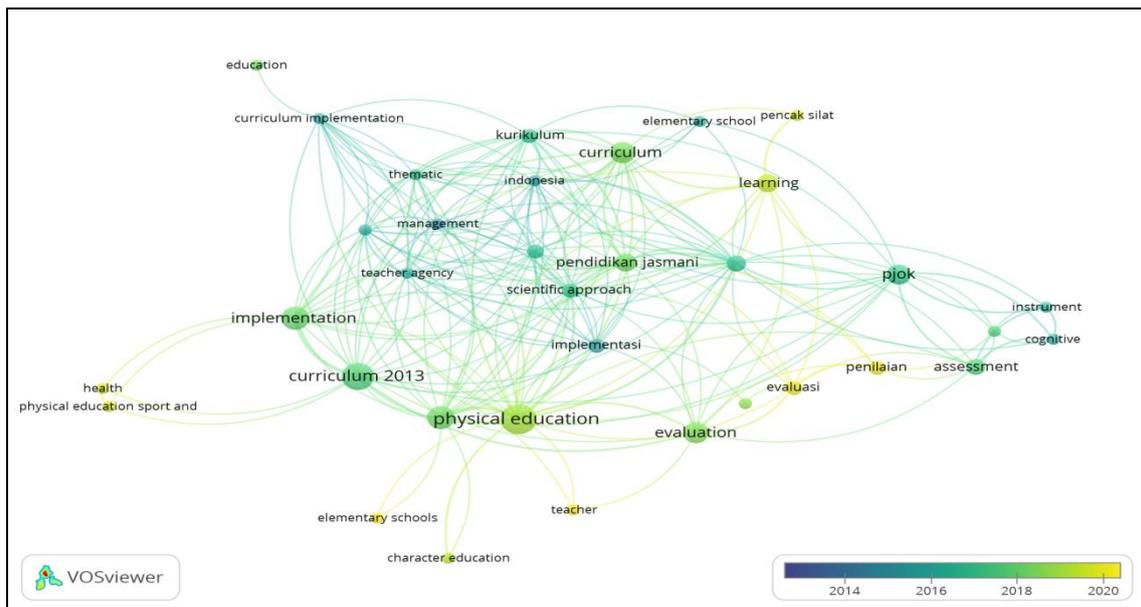


Figure 5. Publication Year Average Of Keywords With High Frequency In Physical Education Publication. Source: Research Data Based On Data Obtained From Scopus, Google Scholar and Dimensions (September 29, 2021) Which Has Been Analyzed With the VOSViewer Application

The *overlay* visualization shows that the majority of keywords with the most recent publication date (visualized in yellow) was from cluster 1 and cluster 3 and was placed on the right side of the map. While clusters 2, 4, 5, and 6 grouped the keywords with the earliest average publication year (visualized in dark blue). To complete the picture and identify emerging topics in publications, the researchers searched for keywords with the most recent publication date and sorted them in Table 5. The bibliometric characteristics used for further analysis included: *average publication year*, number of *occurrences*, *links*, and *total link strength*.

Keyword analysis with the latest publication date shows the following emerging topics in the field of physical education research: (1) Cognitive assessment instruments in PJOK learning (manifested by keywords such as: "assessment", "cognitive", "instrument", "learning", "assessment", "PJOK"). (2) Determination of policies and scientific approaches of the 2013 curriculum in physical education learning (realized by keywords such as: "2013 curriculum", "management", "physical education", "policy enactment", "scientific approach", "teacher agency", "thematic"). (3) Evaluation of the assessment implementation of the physical education teachers (manifested by keywords such as: "evaluation", "evaluation", "implementation", "physical education", "teacher"). (4) Character education in the 2013 curriculum in physical education learning (realized by keywords such as: "2013 curriculum", "character education", "elementary schools", physical education).

Table 5. Bibliometric Characteristics of Recent Keywords from Physical Education Publications (Ordered by Date of Publication)

| <b>Keywords</b>                            | <b>Average publication year</b> | <b>Occurrences</b> | <b>Links</b> | <b>Total Link Strength</b> | <b>Group</b> |
|--|---------------------------------|--------------------|--------------|----------------------------|--------------|
| <i>Teacher</i>                             | 2020.50                         | 2                  | 3            | 3                          | 3            |
| <i>Elementary Schools</i>                  | 2019.50                         | 2                  | 2            | 2                          | 4            |
| <i>Evaluation</i>                          | 2019.67                         | 3                  | 9            | 10                         | 3            |
| <i>Evaluation</i>                          | 2019.67                         | 3                  | 6            | 6                          | 1            |
| <i>Physical Education Sport and Health</i> | 2019.50                         | 2                  | 3            | 4                          | 5            |
| <i>Pencak Silat</i>                        | 2019.50                         | 2                  | 2            | 3                          | 7            |
| <i>Learning</i>                            | 2019.20                         | 5                  | 11           | 14                         | 7            |
| <i>Character Education</i>                 | 2019.00                         | 2                  | 2            | 3                          | 4            |
| <i>Physical Education</i>                  | 2018.71                         | 14                 | 25           | 41                         | 4            |
| <i>physical education</i>                  | 2018.50                         | 2                  | 2            | 2                          | 3            |
| <i>Evaluation</i>                          | 2018.29                         | 7                  | 13           | 16                         | 3            |
| <i>Curriculum</i>                          | 2018.14                         | 7                  | 20           | 28                         | 7            |
| <i>Physical Education</i>                  | 2018.00                         | 5                  | 20           | 27                         | 2            |
| <i>Education</i>                           | 2018.00                         | 2                  | 1            | 1                          | 8            |
| <i>2013 Curriculum</i>                     | 2018.00                         | 8                  | 20           | 25                         | 4            |
| <i>Implementation</i>                      | 2017.88                         | 8                  | 20           | 26                         | 5            |
| <i>Instrument</i>                          | 2017.50                         | 2                  | 6            | 6                          | 1            |
| <i>Assessment</i>                          | 2017.50                         | 4                  | 9            | 12                         | 1            |
| <i>PJOK</i>                                | 2017.00                         | 6                  | 15           | 19                         | 1            |
| <i>Thematic</i>                            | 2017.00                         | 2                  | 16           | 16                         | 2            |
| <i>Curriculum</i>                          | 2017.00                         | 3                  | 18           | 23                         | 6            |
| <i>Scientific Approach</i>                 | 2017.00                         | 3                  | 20           | 25                         | 2            |
| <i>Learning</i>                            | 2016.75                         | 4                  | 25           | 33                         | 1            |
| <i>2013 Curriculum</i>                     | 2016.75                         | 3                  | 17           | 20                         | 2            |
| <i>Cognitive</i>                           | 2016.00                         | 2                  | 5            | 8                          | 1            |
| <i>Instruments</i>                         | 2016.00                         | 2                  | 5            | 8                          | 1            |
| <i>Teacher Agency</i>                      | 2016.00                         | 2                  | 16           | 18                         | 2            |
| <i>Elementary School</i>                   | 2016.00                         | 2                  | 6            | 6                          | 6            |
| <i>Curriculum</i>                          | 2016.00                         | 2                  | 17           | 17                         | 3            |
| <i>Implementation</i>                      | 2016.00                         | 2                  | 16           | 18                         | 2            |
| <i>Policy Enactment</i>                    | 2016.00                         | 2                  | 16           | 18                         | 2            |
| <i>Implementation</i>                      | 2016.67                         | 3                  | 18           | 18                         | 3            |
| <i>Indonesia</i>                           | 2016.50                         | 2                  | 18           | 22                         | 6            |

## Discussion

This study aims to conduct a systematic analysis of trending research literature, especially on the topic of the 2013 curriculum in physical education, using bibliometric analysis. Based on the results of the study, the following is a discussion based on research questions.

## **Publication Productivity of the 2013 Curriculum in Physical Education**

Of the 89 titles of articles published and indexed in the Scopus, Google Scholar and Dimensions database from the 2013-2020 range, the development of articles from 2013-2020 has a significant increase. It can be seen from the increasing number of articles published from 2013-2020. Even though in the 2016-2018 range, the number of articles published did not change up or down (fixed). Meanwhile, in 2021 no mapping was carried out because the COVID-19 pandemic that causes difficulties in conducting research in schools (Churiyah et al., 2020; Ratten, 2020). Based on this data, the researchers can see a progressive increase of the researchers' interest in the 2013 curriculum in physical education and it has the potential to be developed for future studies. In addition, the physical education is a subject that has various advantages and is in line with the importance of other subjects in meeting the quality of an education system (Lengkana & Sofa, 2017).

## **The Most Influential Journals, Authors, and Articles in the Field of the 2013 Curriculum in Physical Education**

The author who made the most publication in this field is M. E. Winarno (State University of Malang) with 6 documents. In this mapping, collaboration between authors was found. The collaboration is very important for authors in order to improve the quality of research and to increase productivity (Kyvik & Reymert, 2017; Pérez-Gutiérrez et al., 2021). Of the 89 articles published, all the authors were from Indonesia because the topic discussed (2013 Curriculum) is the educational curriculum in Indonesia. The languages used in the articles were Bahasa Indonesia and English, but the most use was Bahasa Indonesia. This is because most articles were published in journals or proceedings in Indonesia.

The source that published the most articles on the topic of the 2013 curriculum in physical education was the Proceedings published by Atlantis Press, namely *Advances in Social Science, Education and Humanities Research* with the contribution of 12 articles. The most influential article on the topic of the 2013 curriculum in physical education was written by Katuuk (2014) with the title "*Management of Curriculum Implementation: Strategies for Strengthening the Implementation of the 2013 Curriculum*", and it became the most cited article (77 citations). This article discussed the strengthening steps that need to be taken as a strategy to strengthen the successful implementation of the 2013 Curriculum (Katuuk, 2014).

Of the 10 most influential articles, 4 articles discussed aspects of assessment in the 2013 curriculum. This has attracted the interest of the researchers, perhaps due to the problem that occurred in physical education

teachers when implementing the 2013 curriculum in schools, which was the assessment aspect (Liana, 2020; Setiadi, 2016). Therefore, this topic is an interesting subject to be studied in the future by conducting studies that can solve problems for physical education teachers.

Based on the analysis of the most influential journals, authors, and articles in the field of the 2013 Curriculum in Physical Education, these factors can provide information to further researchers to enrich the relevant literature review like as detailed as this study.

### **Keywords that often appear in the topic of the 2013 curriculum in physical education**

This analysis helps us to see the main interest topic of the researchers, and to build a conceptual map. In addition, it can highlight main trends in research in the field of curriculum and physical education. Co-occurrence of keywords and terms means identifying keywords and terms that are found together in articles. This analysis shows the relationship between keywords and terms that appear together in the network map (Van Eck & Waltman, 2019; Zupic & Cater, 2015). The results of the data visualization analysis using VOSViewer show that the keywords with the highest number of occurrences were physical education (14), curriculum 2013 (11), 2013 curriculum (8), implementation (8), curriculum (7), evaluation (7), PJOK ( 6), learning (5), physical education (5), assessment (4).

Based on these keyword mapping, it can be found interesting topics to be researched, such as: (1) Cognitive assessment instruments in PJOK learning, (2) Determination of policies and scientific approaches of the 2013 curriculum in physical education learning, (3) Evaluation of the assessment implementation for physical education teachers, (4) Character education in the 2013 curriculum in physical education learning.

### **CONCLUSION**

This study aims to conduct a bibliometric analysis on the trending research literature, especially in the topic of the 2013 curriculum in physical education published in the Scopus, Google Scholar and Dimensions databases from 2013-2020. Based on publications in the Scopus, Google Scholar and Dimensions databases, the findings reveal that: the number of publications from 2013 to 2020 has increased; of the 89 articles published, all the authors were from Indonesia, because the topic discussed (Curriculum 2013) is the education curriculum in Indonesia; M. E. Winarno (State University of Malang) was the author with the most publications (6 documents); the source that published the most articles was *Advances in Social Science, Education and Humanities Research* (12 documents); the most influential article (77 citations)

was entitled "*Management of Curriculum Implementation: Strategies for Strengthening the Implementation of the 2013 Curriculum*", and the interesting article to be discussed was the aspect of assessment in the 2013 curriculum; keywords that often appear were "physical education" and "curriculum 2013".

There were several limitations of this study, which were: (1) the author had difficulty in combining 3 databases (Scopus, Google Scholar and Dimensions) into VOSViewer. Therefore, it made only keywords that can be found using VOSViewer. The other findings were found by the author by analyzing one by one using the help of Microsoft Excel. (2) the author only limited the study to the 2013-2020 range, this is because the year of 2021 still leaves 3 months, so the search for articles is not optimal. (3) The author also only limited to two types of documents and sources, namely journal articles and proceedings, while there are still types of source documents such as: *Thesis (undergraduate program) and Thesis (postgraduate program)* (On Google Scholar search). However, the number of articles from the types of documents and sources that the researchers limit was very small, and in the author's opinion, it will not have a significant effect on these findings.

This analysis can provide insight and knowledge about the development of research on the topic of the 2013 curriculum in physical education and can be a source of information for teachers, lecturers, schools, universities and the world of education. For future researchers, they can continue this mapping by starting from 2021 until the following years. The findings from the mapping can also be used as a reference by looking at what topics are interesting and have not been discussed by previous researchers. These aspects are needed for future researchers for describing the background or address the broad problems related to the previous research about the 2013 curriculum in physical education. They may also use other review methodologies, such as narrative review, scoping review, systematic literature review, or meta-analysis, to describe the relationships found in the study.

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