

Citation-Based Analysis of Studies on Physical Education Teachers: A Bibliometric Study*

Osman GÜLTEN¹, Ahmet DİNÇ^{1†}

¹Iğdır University, Faculty of Sport Sciences, Iğdır, Türkiye

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Abstract

Teaching is a profession that has been exercised since ancient times and has not lost its popularity. Knowledge has been transmitted through teaching throughout the ages. Today, teaching has become even more important due to rapidly changing information trends. This study aims to provide a general assessment of the research being carried out on teaching physical education between 2013 and 2023. In the study, foreign-language articles were searched in the Web of Science database. They were selected according to the inclusion and exclusion criteria. A total of 2145 studies were analysed. Bibliometric analysis is one of the quantitative research methods. The Vosviewer programme was used for the analyses. As a result of the search, some authors such as Richards, Kevin Andrew and Haerens, Leen are the most cited authors, the most cited studies in this area were reached in 2022, authors such as Pill, Shane and Vansteenkiste Maarten are among the most cited authors, Ryan and Deci's "Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions" by Ryan and Deci is the most cited work and Turkey is a cited country in research. It is believed that the results of this study will provide an important resource for understanding the existing literature in this area and provide a basis for future research.

Keywords: Bibliometric analysis, Citation analysis, Physical education teaching

* This article is based on a master's thesis

† **Corresponding Author:** Ahmet Dinç, **E-mail:** ahmet.dinc@igdir.edu.tr

INTRODUCTION

Profession is a field of endeavor that emerges as a result of the necessity of social life, arises from cooperation or work sharing in the execution of services in society, requires a certain education, and has social, cultural and economic dimensions (Ayas, 2009). The Ministry of National Education (MEB) defines the teaching profession as a specialized profession that undertakes the state's education, training and related administrative duties. Özbek (2008) defines physical education teaching as a field of specialization that adheres to the principles and regulations of Turkish National Education, has the field knowledge and general culture to implement the programs of the physical education course, and can work in in-school and out-of-school activities. Teachers have a direct impact on the trained manpower of the future. In this respect, it is important to pay attention to the education of teachers. In modern thinking, achieving organizational goals will be achieved through human resources (Gratton & Ghoshal, 2003). Organizations can improve and contribute to sustainable growth and performance by investing in employees' psychological capital. In this way, organizations can get ahead in the competitive race among themselves (Envick, 2005).

Teacher education has always been the subject of scientific research, as students' learning and success often depend on the competence of the teacher (MacPhail et al., 2023). Physical education teachers are also important in raising healthy individuals and athletes of the future. In this respect, a systematic analysis of the scientific literature on physical education teaching, the numerical and qualitative characteristics of the published articles, as well as the relationships and connections between these articles will highlight the deficiencies and needs in the field of physical education teaching. Our study gives us information about which countries have the most studies in the field of physical education and sport, who are the authors of the most studies, in which years more studies have been carried out and which are the most cited works. Considering these data, it is thought that leading countries, authors and works will give us important clues about which educational models and approaches they use and apply.

In the literature, especially in Web of Science (WOS), it was seen that many studies were conducted with the keyword “physical education teaching” (Baytur & Ulaş, 2022; Choi et al., 2020; Dinç & Özbek, 2019; Hordvik & Beni, 2024; McEvoy et al., 2015; Moen & Standal, 2016; Scanlon et al., 2024; Yıkılmaz & Alıncak, 2021). The feature that distinguishes this study from other studies is that there is no such study in Web of Science before and it offers a different perspective in the direction of the analyzes made in understanding the subject of physical education teaching. In this respect, it is important. The fact that we have covered the last 10 years in our study is due to the idea that there is more interest in current and new issues. In this context, the aim of the study is to present a general evaluation of the research conducted in the field of physical education teaching between 2013 and 2023. In this context, my research questions are as follows:

1- How is the co-author analysis in the studies on physical education teaching?

- 2- How is the distribution of studies on physical education teaching according to years?
- 3- Which authors are the most cited authors in the international literature in the studies on physical education teaching?
- 4- How is the citation status according to countries in studies on physical education teaching?

METHOD

Research Model

In this study, bibliometric analysis method, one of the quantitative research methods, was used. Bibliometric analysis uses mathematical and statistical methods to classify, evaluate, measure and rank the performance of keywords, studies, authors, journals, institutions, countries, etc. in any research field (Öztürk & Gürler, 2021).

Data Collection Tools

Web of Science database and Vosviewer program were used to collect the research data. “Physical Education Teachers” was used as the keyword. The years 2013-2023, Social Sciences Citation Index (SSCI). Emerging Sources Citation Index (ESCI) and Science Citation Index-Expanded (SCI Expanded) are included. A total of 2145 studies were analyzed in our research.

Ethical Approval

Ethical permission was obtained from “Iğdır University Scientific Research and Publication Ethics Committee” with the number “E-37077861-900-139719.”

Statistical Analysis

The data were analyzed using Vosviewer, a program provided by Web of Science. This program visualizes the publications in the literature and creates heat maps showing the relationship and density of these publications. In the research, co-author analysis, author citation analysis, source citation analysis and country citation analysis were conducted.

Inclusion and Exclusion Criteria

Inclusion Criteria:

- Having research on the subject of physical education teaching,
- Availability of full texts,
- Having research published in the literature,
- Adherence to the study's objectives and research questions,
- The study's sample size and the type of methods used,
- Having been published between 2013-2023.

Exclusion Criteria:

- Off-topic studies

- Studies consisting only of thesis titles, excluding abstracts
- Studies for which only abstracts of full texts are available,
- Inaccessibility of full texts for any reason
- That only some of the full texts are available,
- That full texts are only in the form of conference proceedings or poster presentations,
- Repeated studies or studies with the same data.

RESULTS

Co-authorship Analysis

The co-author analysis shows the network of authors working collaboratively in the field of physical education teaching. According to the results of the analysis, certain authors worked together more often and shared their knowledge and experience by conducting research together. Some authors such as Richards, K. Andrew and Haerens, Leen have been identified as prominent names in this field. By emphasizing the importance of collaboration within the discipline, co-author analysis contributes to the discovery of new areas of research and the acceleration of scientific developments.

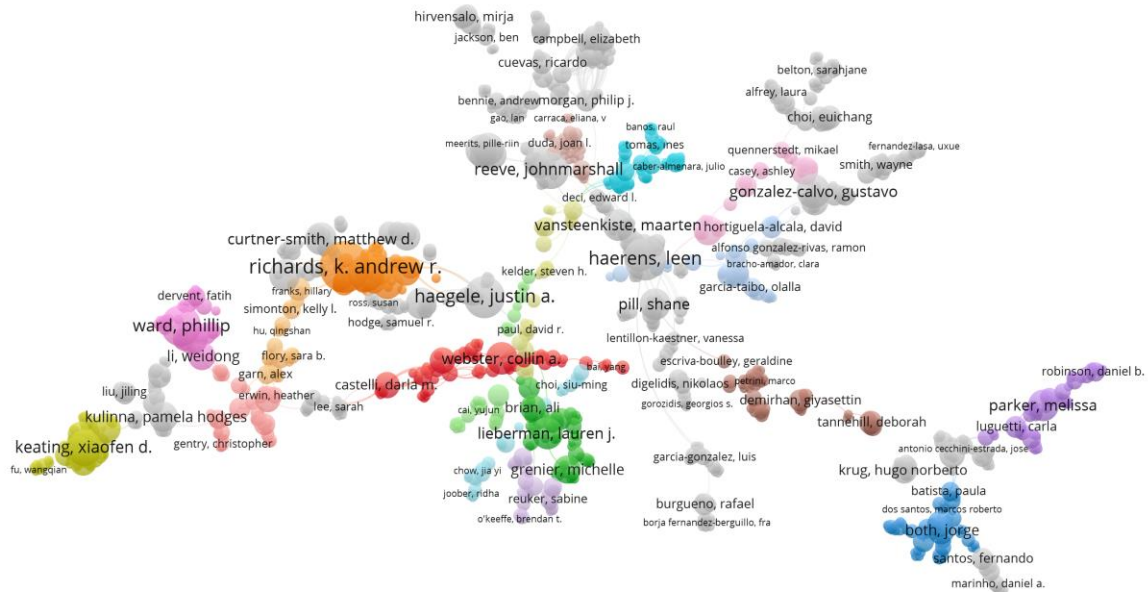


Figure 1. Co-authorship analysis

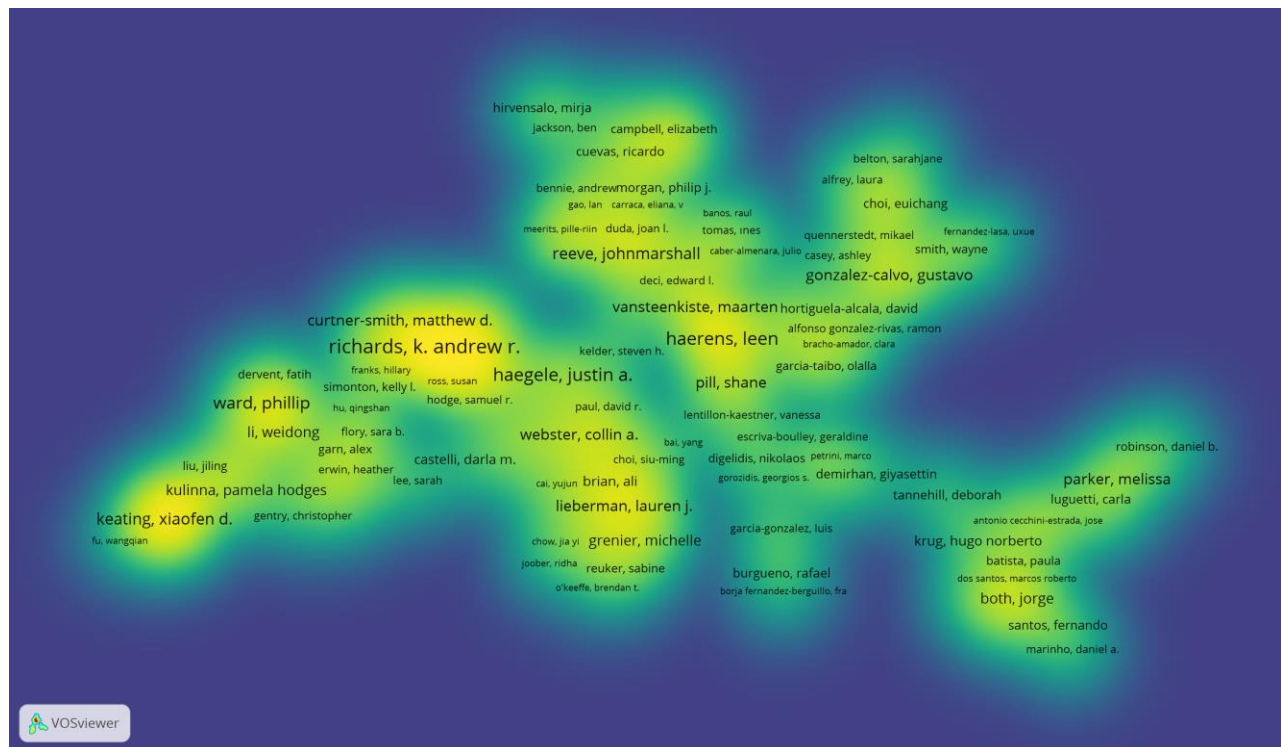


Figure 2. Co-authorship analysis heatmap

Author Citation Analysis

The first graph below shows the total number of citations of physical education teaching studies by year between 2013 and 2023. The highest number of citations was recorded in 2022, indicating that the interest in research in this area is increasing and that the work is having a significant impact. The total number of publications over the same time period is displayed in the second graph. The tendency toward an increase in publications indicates that there are an increasing number of publications.

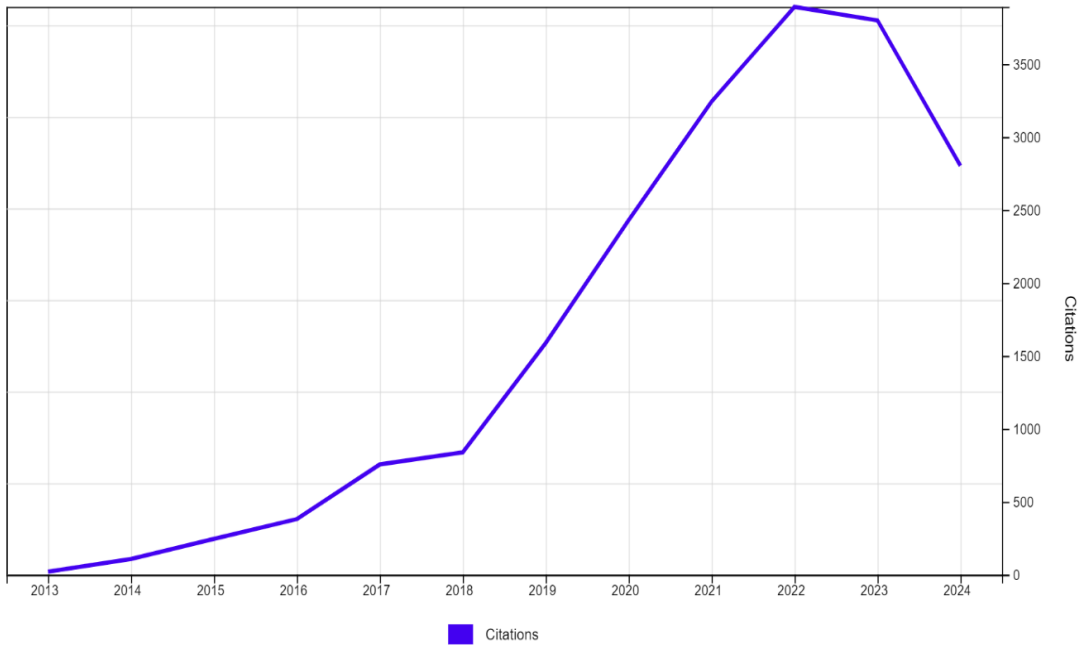


Figure 3. Author citation numbers

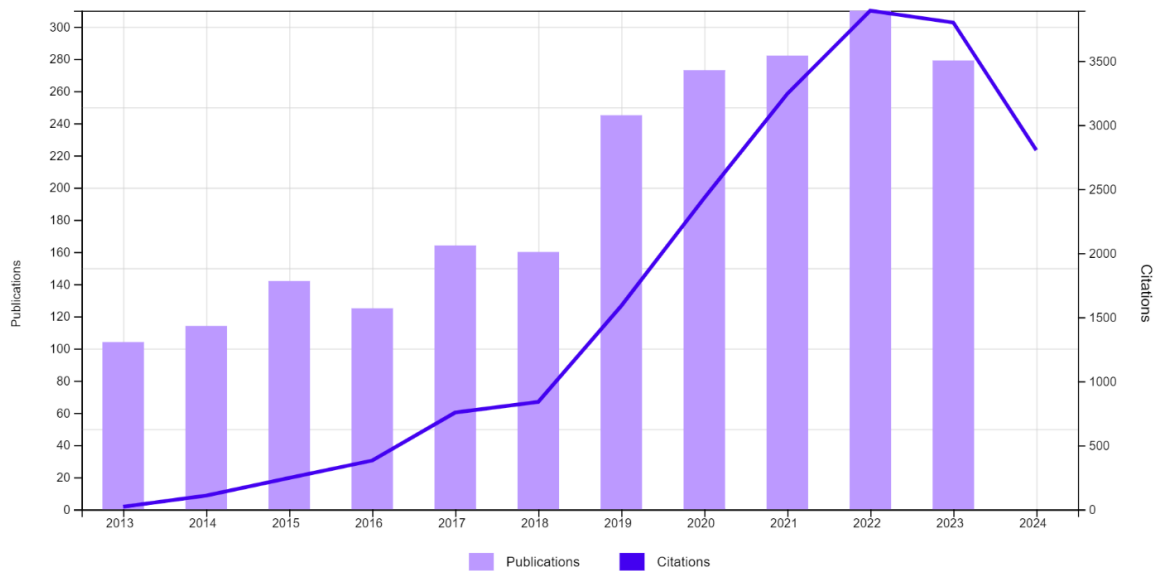


Figure 4. Citation Numbers

The results of the author citation analysis show the networks in which specific authors are cited by other authors. Some authors are cited more frequently than others, which may reflect the influence of their work within the discipline. For example, some authors, such as Pill, Shane and Vansteenkiste Maarten are among those whose work has attracted attention and citations. Author

citation analysis highlights collaboration and knowledge sharing within the discipline, showing that specific authors are influential in their research field and are followed by other researchers.

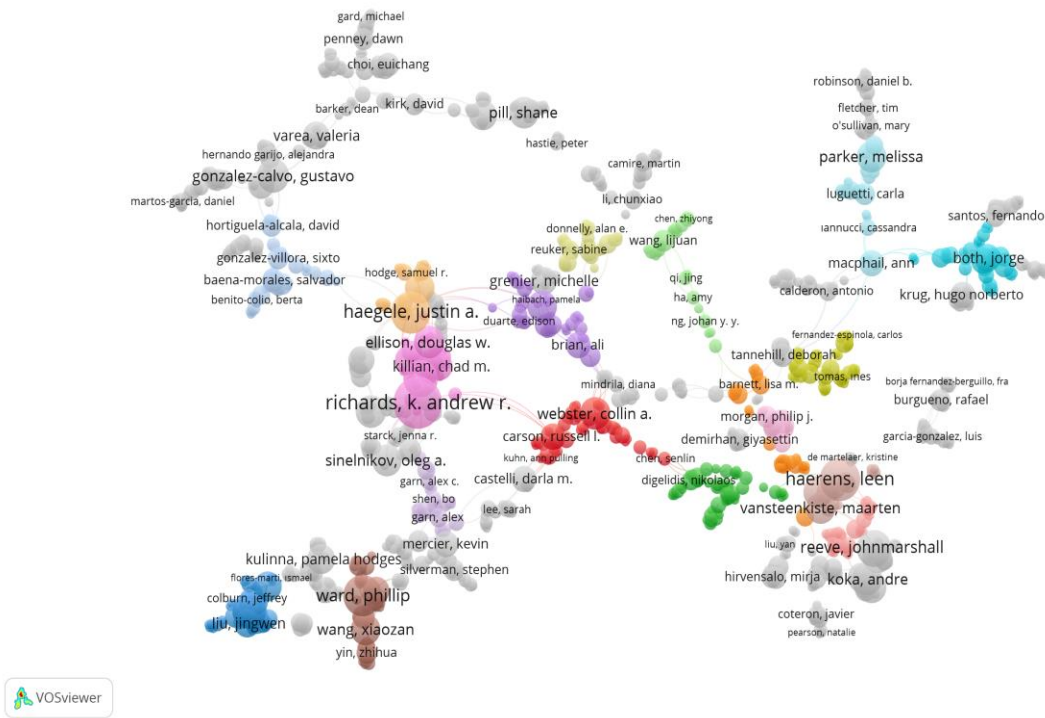


Figure 5. Author citation analysis

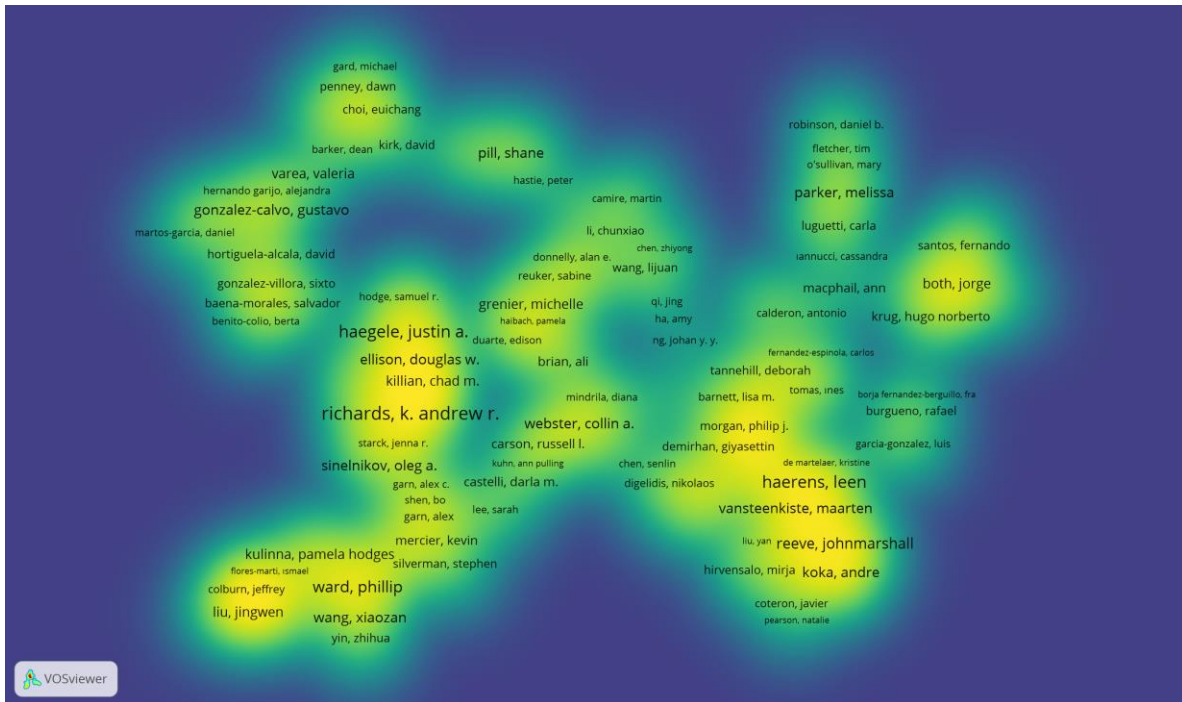


Figure 6. Author citation analysis heatmap

Source Citation Analysis

The results of the source citation analysis show the networks in which specific sources are cited by other sources. Some sources are cited more frequently than others, which may reflect their acceptance and influence in the literature. For example, some sources, such as Gonzales-Calvo, Gustavo are among those whose work has attracted attention and citations. Source citation analysis highlights the knowledge sharing and influence of sources in the literature, showing that certain sources specialize in leading issues in the discipline and are considered important by other researchers.

Table 1. Top 5 most cited sources

No	Title	Authors	Publication Date	Number of Citations
1	“Intrinsic and Extrinsic Motivation from a Self-Determination Theory Perspective: Definitions, Theory, Practices, and Future Directions”	“Ryan, Rm and Deci, El”	Apr 2020	812
2	“Toward an Integrative and Fine-Grained Insight in Motivating and Demotivating Teaching Styles: The Merits of a Circumplex Approach”	“Aelterman, N; Vansteenkiste, M; (...); Reeve, J”	Apr 2019	161
3	“Teachers' Everyday Professional Development: Mapping Informal Learning Activities, Antecedents, and Learning Outcomes”	“Kyndt, E; Gijbels, D; (...); Donche, V”	Dec 2016	145
4	“Adolescents' Perspectives on the Barriers and Facilitators of Physical Activity: A Systematic Review of Qualitative Studies”	“Martins, J; Marques, A; (...); Da Costa, Fc”	Oct 2015	160
5	“A Classroom-Based Intervention to Help Teachers Decrease Students' Amotivation”	“Cheon, Sh and Reeve, J”	Jan 2015	161

Table 1 presents the list of the 10 most cited sources between 2019 and 2023. According to this table, the most cited study is “Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions”, which received 812 citations in total. In the second place is “Toward an Integrative and Fine-Grained Insight in Motivating and Demotivating Teaching Styles: The Merits of a Circumplex Approach” published by Aelterman et al., in 2019 and received 161 citations in total. The third study is “A Classroom-Based Intervention to Help Teachers Decrease Students' Amotivation” published by Cheon and Reeve in 2015 and received 161 citations in total. These results show that the most cited study among the studies on physical education teaching between 2013-2023 is “Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions”. This study is frequently cited and discussed in this field because it deals with the issue from the perspective of “self-management theory”, which constitutes an important aspect of the studies in the field of physical education teaching. In this context, when the Source citation analysis was conducted, a cloud emerged as follows:

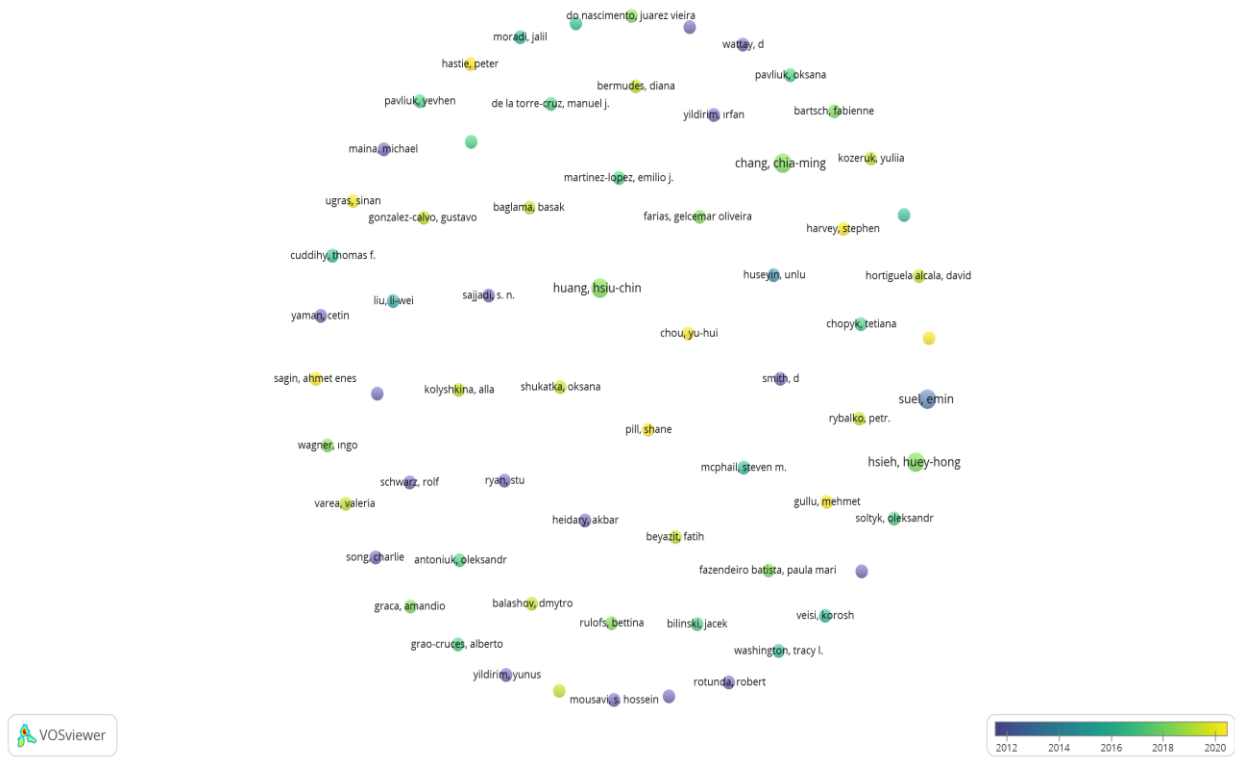


Figure 7. Source citation analysis

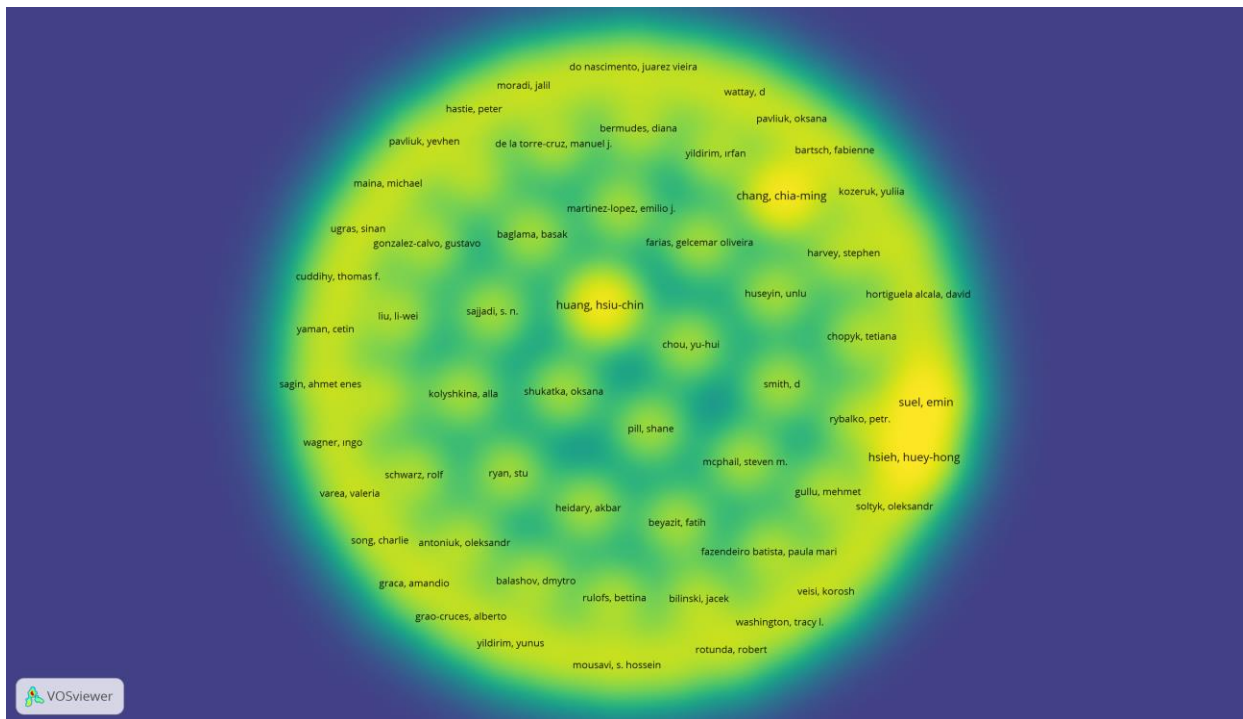


Figure 8. Source citation analysis heatmap

Country Citation Analysis

According to the results of country citation analysis, it is seen that Turkey is a cited country in the studies conducted. Turkey stands out as a frequently cited source by other countries, indicating that the work of Turkish researchers is internationally recognized and has a significant impact. Other important countries that refer to Turkey in their studies are the People's Republic of China and Poland. These countries stand out as countries that care about and reference Turkish research, which shows that Turkey has an internationally recognized position in research and academia. Turkey's relationship with these countries is important in terms of information sharing and cooperation. Among researchers and academics, studies and citations to these countries can enrich knowledge by bringing together different perspectives and scientific disciplines. In this respect, the following result emerged from the country citation analysis.



Figure 9. Country citation analysis

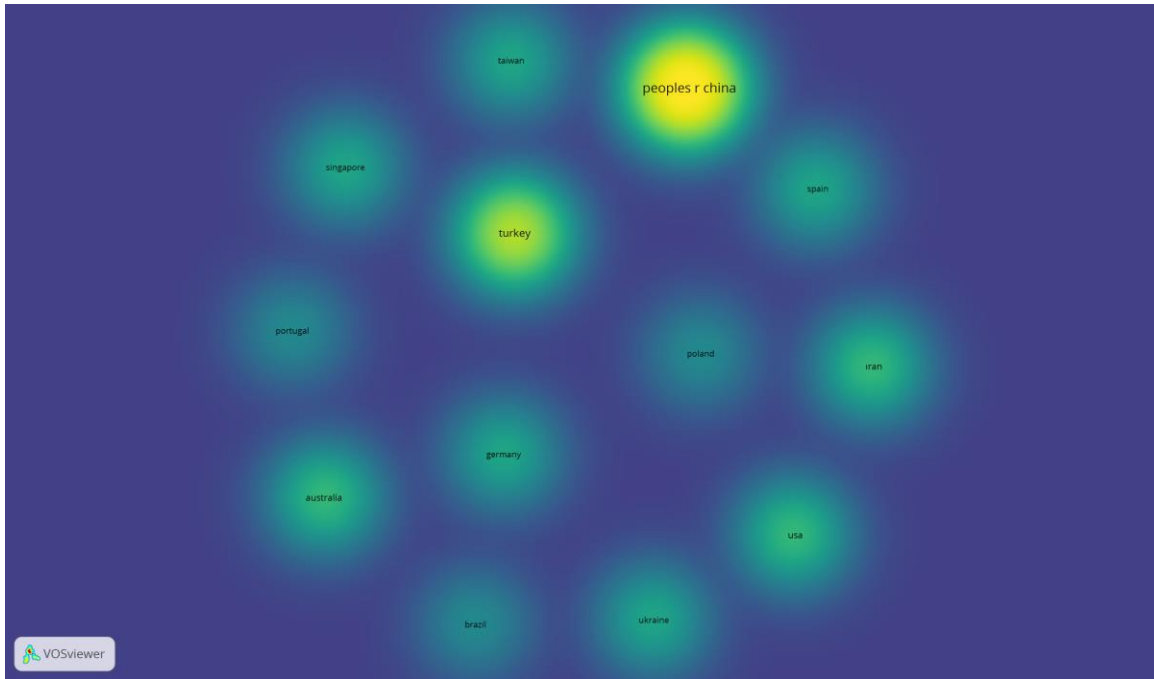


Figure 10. Country citation analysis heatmap

DISCUSSION AND CONCLUSION

Our study was conducted to present a general evaluation of the research published in WOS in the field of physical education teaching. In this context, answers were sought to the questions of co-author analysis of the studies on physical education teaching, their distribution according to years, which authors and studies are the most cited authors and studies in the international literature, and how the citation status is according to countries.

In the first research question, it was determined that the authors who worked together the most were Richards, K. Andrew and Haerens, Leen. Similarly, studies by Peng & Hu, 2022; Yıldız et al., 2023; Zhou, 2023 also show that the Americas and Europe are at the forefront of the rankings. The fact that these two authors work in leading countries in the field of physical education such as America and Europe give important impressions that the success is not a coincidence. The number of medals won by the countries in the Paris Olympics (Olympics, 2024) held this year supports our research.

When we look at the distribution of our second research question according to the years of the studies, it was determined that there has been an increase in the studies conducted with the keyword physical education teacher in recent years, and the most studies were conducted in 2022. The increase in studies on physical education teaching after the Covid 19 (WHO, 2024) outbreak that started in 2019 has revealed how important and necessary physical education is at the point of health during the epidemic.

In our third research question, the most cited authors are Pill, Shane, Vansteenkiste Maarten and Richards, K. Andrew and the most cited article is Ryan and Deci's (2020) article "Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions" has 812 citations. When we look at the data of Web of Science in 2024, it is seen that the number of citations of this study reached 1557. This result supports the conclusion of our second research question.

In our fourth and final research question, it was determined that China, USA, Germany are at the forefront in the citation ranking by countries, but Turkey does not stand out as a source frequently cited by other countries. These indicators show that the work of researchers in Turkey is internationally recognized and has a significant impact. According to Scopus data, the fact that Turkey, which ranked 22nd in the world in the production of scientific documents in 2002, (YÖK, 2024) rose to 17th place in 2022 supports this conclusion.

This study also has limitations. In particular, the use of only open access foreign language articles in the Web of Science database resulted in the exclusion of articles that could not be accessed in other databases. This limitation may affect the general validity and scope of the study. This study searched literature with a single keyword. Moreover, only citation analysis was performed in this study.

RECOMMENDATIONS

Our recommendations as a result of the research are as follows.

Increasing the number of authors working together in the field of physical education teaching in Turkey and conducting more studies in the field of physical education teaching and transforming these studies into innovation can help Turkey to compete with America and European Union countries, which are pioneers in this field. In our study, it has been determined that the number of citations has increased in recent years, so it is thought that it will be important to increase the number of studies in this field in Turkey. In addition, the results of the study can help to create new perspectives and approaches for such studies.

Authors' Contribution: "Research Design- OG; AD, Data Collection- OG, Statistical analysis- OG; Preparation of the manuscript, OG; AD."

Conflict of Interest: "The author(s) of the article do not have any personal or financial conflicts of interest within the scope of the study."

Ethical Approval:

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