

## Physical Education Teacher Education: A Bibliometric Analysis by Vosviewer

*Beden Eğitimi Öğretmen Eğitimi: Vosviewer ile Bibliyometrik Bir Analiz*

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**Abstract:** This study aimed to conduct a bibliometric analysis of physical education teacher education-themed articles in the category of sports sciences and educational research in the Web of Science (WOS) database. VOSviewer scientific mapping tool in the WOS database was used as a data collection tool. The keyword 'physical education teacher education' was used as a search criterion in WOS and publications published between 1991-2023 were considered. A total of 697 studies in the category of educational research and sports sciences that met the search criteria were reached. The studies were analysed with VOSviewer (1.6.19) bibliometric analysis programme. According to the results, it was concluded that the most commonly used keywords were physical education and physical education teacher education, the most published and cited journal was Journal of Teaching in Physical Education, the most published and cited author was K. Andrew Richards, the most publish (n:413) and cite (n:4783) was belong to the United States of America.

**Keywords:** Bibliometric analysis, Vosviewer, physical education teacher education.

**Özet:** Bu çalışmada Web of Science (WOS) veri tabanındaki spor bilimleri ve eğitim araştırmaları kategorisinde beden eğitimi öğretmen eğitimi temalı makalelerin bibliyometrik analizinin yapılması amaçlanmıştır. Veri toplama aracı olarak WOS veri tabanındaki VOSviewer bilimsel haritalama aracı kullanılmıştır. WOS'da arama kriteri olarak 'beden eğitimi öğretmen eğitimi' anahtar sözcük kullanılmış olup, 1991-2023 yılları arasında yapılan yayınlar dikkate alınmıştır. Arama kriterlerini sağlayan eğitim araştırmaları ve spor bilimleri kategorisinde yer alan 697 çalışmaya ulaşılmıştır. Ulaşılan çalışmalar VOSviewer (1.6.19) bibliyometrik analiz programı ile analiz edilmiştir. Bulgulara göre en fazla kullanılan anahtar sözcüklerin beden eğitimi ve beden eğitimi öğretmen eğitimi olduğu; en fazla yayın ve atıf sahibi derginin Journal of Teaching in Physical Education dergisi olduğu, en fazla yayın ve atıf sahibi yazarın K. Andrew Richards, en fazla yayın (n:413) ve atıf sahibi (n:4783) ülkenin ise Amerika Birleşik Devletleri olduğu sonucuna ulaşılmıştır.

**Anahtar Kelimeler:** Bibliyometrik analiz, Vosviewer, beden eğitimi öğretmen eğitimi.

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## INTRODUCTION

Qualified teachers are needed to educate individuals as a result of the changing and developing needs of society. Therefore, teacher education is one of the important issues to be emphasised. It can be considered that a teacher's professional competence is an essential determinant of the quality of the education he/she will provide. The more professionally competent a teacher is, the more he/she will positively affect students' learning (Hattie, 2003). Since students' learning and success largely depend on the competence of the teacher, teacher education is always the subject of scientific research (Fröberg & Lundvall, 2022; MacPhail et al., 2023; McEvoy et al., 2015; Tannehill, n.d., 2021). The most cited publication from the early years of research in physical education is Metzler and Freedman (Metzler & Freedman, 1985). These authors attempted to collect a profile of physical education teacher educators, including information about their professional activities and responsibilities, through a survey of 171 Physical Education teacher education faculties in the USA, and to gather respondents' related views. Lawson (1991) was the first to present to scholars in the field an attempt to expand our knowledge of physical education teacher educators.

When the literature is analysed, it is seen that publications are also gathered under other topics that may be related to physical education teacher education. For example, one of the aims of teacher education programmes is to ensure that pre-service teachers have a solid foundation to start the teaching profession (Goodnough et al., 2016). The development of the roles expected from teachers requires teacher education in particular. For teacher education, a balance between

theoretical and practical aspects should be established in the curriculum. In another research, the teacher who can develop himself/herself professionally with the new opportunities provided by scientific and technological development can make a difference. To prepare prospective teachers to adequately integrate technology into teaching and learning processes, teacher educators need to design learning experiences that support the development of digital competencies (Oberländer et al., 2020). When the literature was examined, various studies that applied bibliometric analysis based on physical education were found. These studies were conducted on topics such as physical education courses (Gümüş, 2020; Kış, 2020; Öner & Murathan, 2023); physical education pedagogy (Tabak, 2023; Uysal & Atay, 2021), teaching models in physical education and sport (Baytur & Ulaş, 2022; Evangelio Caballero et al., 2018). When the studies were examined, no study was found in which only the bibliometric analysis of publications under the title of physical education teacher education was presented. Since no studies based on physical education teacher education keywords were found, this study was decided to be conducted.

It is considered important to present the current situation of the publications on physical education teacher education published in the WOS database, especially in the field of sports sciences, with bibliometric analysis to guide future studies. On this basis, it was aimed to present the bibliometric analysis of the publications on physical education teacher education in the category of educational research and sports sciences in the WOS database.

**METHODS**

**Research Model:** In the research, the bibliometric analysis method was used in the data obtained from various databases. Bibliometric analysis is a popular and careful method used to explore and analyse large volumes of scientific data. In this sense, bibliometrics is based on quantitative measurements that enable the statistical presentation of certain characteristics of scientific publications or documents such as author, collaboration between authors, subject, cited author, citation data, publication information, etc. with visual maps and networks (Fahimnia et al., 2015; Krauskopf, 2018; Yılmaz, 2021).

**Research Group:** The sample of the study consisted of 697 publications published in the Web of Science database in the category of 'Educational Research and Sports Sciences' between 1991-2023 on 'physical education teacher education'. The data were obtained from the documents scanned in the indexes 'Social Science Citation Index' (SSCI) (n:506), 'Science Citation Index-Expanded' (SCI-E) (n:328) and 'Emerging Sources Citation Index' (n:180) in the WOS database.

**Data Collection:** In the WOS database, 'physical education teacher education' was typed as a keyword; the results were filtered. WOS category: 'education educational research and sport science', WOS index was filtered as 'SCI-E, SSCI or ESCI' and years were filtered as 'all years'. A total of 697 publications fulfilling these criteria were reached. The

obtained data were downloaded with the 'Export-Tab Delimited File-Full Record and Cited References' instructions in the database and files with 'txt' extension files were downloaded in total 2 files, 500 each. The downloaded files were transferred to the VOSviewer analysis programme and made ready for analysis.

**Analysis of Data:** The data collected in the study were analysed in VOSviewer (1.6.19) bibliometric analysis software. VOSviewer stands for 'Visualization of Similarities' technology and this frequently used analysis method was developed in 2010 (van Eck & Waltman, 2010). Thanks to the scientific literature analysis with VOSviewer, it is possible to see the most cited publications, the network structure of research groups, the collaboration between authors in multi-author studies, etc. data in a visualised way.

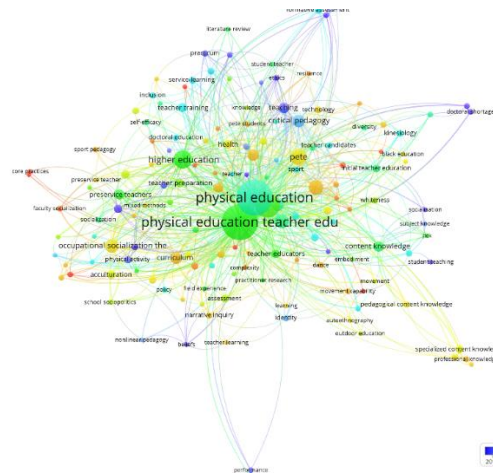
**Limitations of the Research:**

- The analysed studies were taken from the WOS database. In this field, different results can be obtained by performing bibliometric analysis with Scopus or other databases.
- This study was conducted by setting certain criteria. Determining different criteria may vary the results in the ranking.

**RESULTS**

**1. Bibliometric analysis results of keywords**

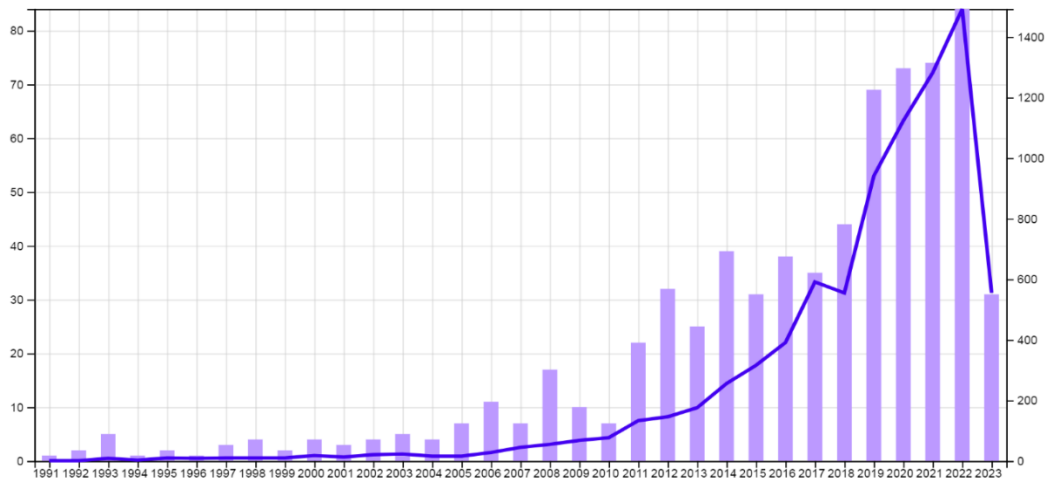
At least 3 or more repeated keywords were included in the search criteria of keywords. In the search results, 150 keywords were reached that met this criterion.



**Figure 1.1.** Link of keywords

According to the results of the bibliometric analysis, the top 5 most used keywords were physical education (n:155), physical education teacher education (n:154), teacher education (n:71), higher education (n:41) and social justice (n:26). The keywords of the green cluster were [1] physical education teacher education, [2] teacher education and higher education, the keyword of the light blue cluster was physical education, and the keyword of the yellow cluster was PETE

(physical education teacher education). The keyword physical education teacher education has a strong connection with other clusters. The clusters close to the red colour represent the keywords in recent studies (basic practice, initial teacher education, inclusive education policy, adapted physical education, sport pedagogy, critical reflection, professional learning etc.).

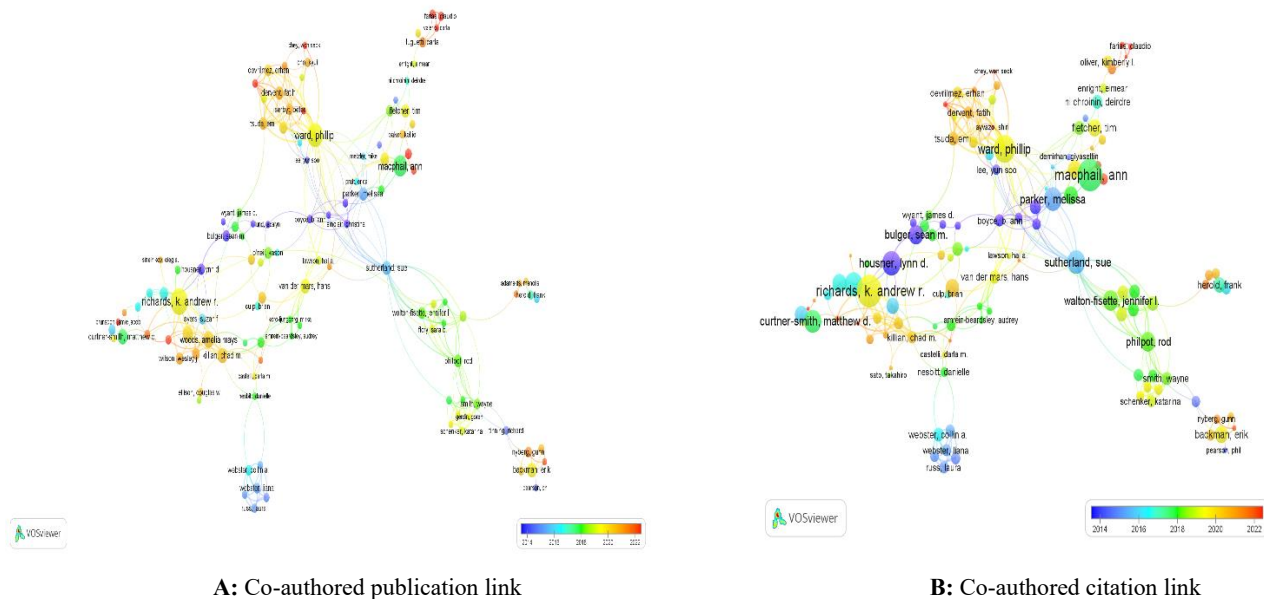


**Chart 1.1.** Change in the number of publications in the WOS database by years.

When Graph 1.1 was analysed, it was seen that the first publication related to physical education teacher education scanned in the WOS database was published in 1991 (n:1), there was no increase in the number of publications until 2005, and there has been an increase in the number of publications since 2006. In 2022 (n: 84 publications, 1492 citations), the highest number of publications was reached. Until 2023, there were 697 publications and 8411 citations in total.

## 2. Bibliometric analysis of co-authored publications and citations

When the criterion of at least 3 publications and 3 citations was used in the co-authored publication and citation analysis, 164 of the co-authors who met this criterion were included in the analysis.



**A:** Co-authored publication link

**B:** Co-authored citation link

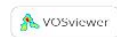
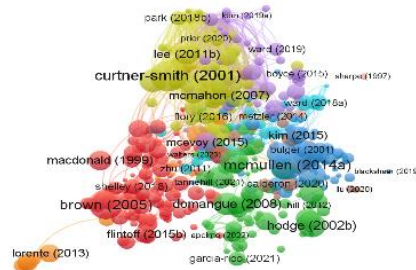
**Figure 2.1.** Bibliometric analysis of co-authored publications and number of citations

As a result of the bibliometric analysis, the top 5 authors with the highest number of publications were K. Andrew R. Richards (n:38, link strength: 67), Phillip Ward (n:31, link strength: 93), Ann MacPhail (n:24, link strength: 20), Amelia Mays Woods (n:15, link strength: 39) and Kim C. Graber (n:14, link strength: 29). If the clusters were the same colour and close, it means that the cooperation was high. For example, K. Andrew R. Richards is a key node in 4 different colour clusters and is in cooperation with Matthew Curtner-Smith and Amelia Mays Woods in the same cluster. Phillip

Ward and Ann MacPhail are the leaders of the other 2 clusters. As a result of the bibliometric analysis, the top 5 most cited authors were K. Andrew R. Richards (n:446, total link strength: 67), Ann Macphail (n:439, total link strength: 20), Phillip Ward (n:320, total link strength: 93), Lynn D. Housner (n:249, total link strength: 11) and Melissa Parker (n:239, total link strength: 24). K. Andrew R. Richards was the key node of the yellow cluster and Ann Macphail was the key node of the green cluster.

### 3. Bibliometric analysis of citation counts of publications

In the screening criteria, a total of 451 publications that met the minimum 3 citation requirement were analysed.



**Figure 3.1.** Bibliometric analysis of the number of citations of publications

As a result of the bibliometric analysis, the top 5 most cited publications were Richards (Richards et al., 2018) (n:31 citations, link strength: 857), Richards (Richards et al., 2013) (n:109 citations, link strength: 774), Chroinin (Chr  n  n & Coulter, 2012) (n:17 citations, link strength: 723), Curtner-Smith (2001) (n:140 citations, link strength: 698) and Richards (2019a) (n:24 citations, link strength: 646).

### 4. Bibliometric analysis of journal publications and number of citations

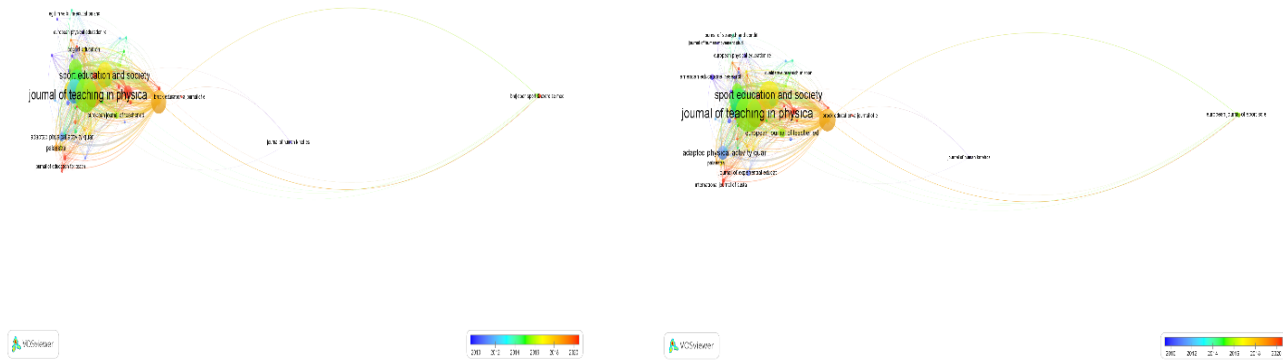
When publications with at least 1 publication and 1 citation were included in the search criteria, a total of 67 journals were analysed.

**Table 4.1.** Top 10 journals by number of publications and citations

Journals	Publication Number	Total link Strength	Journals	Number of Citations	Total link Strength
1. Journal of Teaching in Physical Education	128	25848	1. Journal of Teaching in Physical Education	1941	25848
2. Physical Education and Sport Pedagogy	77	13372	2. Sport Education and Society	1178	12018
3. Sport Education and Society	69	12018	3. Physical Education and Sport Pedagogy	1131	13372
4. Research Quarterly for Exercise and Sport	66	5206	4. Quest	944	13336
5. European Physical Education Review	59	16644	5. European Physical Education Review	751	16644
6. Quest	59	13336	6. Research Quarterly for Exercise and Sport	361	5206
7. Physical Educator-US	47	6331	7. Teaching and Teacher Education	323	2367
8. Journal of Physical Education Recreat	40	2468	8. Adapted Physical Activity Quarterly	305	2441
9. Curriculum Studies in Health and Physical Education	18	3471	9. Physical Educator-US	272	6331
10. Teaching and Teacher Education	10	2367	10. Journal of Physical Education Recreat	154	2468

When Table was analysed, it was found that the top 5 journals with the highest number of publications were Journal of Teaching in Physical Education (n:128, total link strength: 25848), Physical Education and Sport Pedagogy (n:77, total

link strength: 13372), Sports Education and Society (n:69, total link strength: 12018), Research Quarterly for Exercise and Sport (n:66, total link strength: 5206) and European Physical Education Review (n:59, total link strength: 16644).



A: Number of journal publications

B: Number of journal citations

Figure 4.1. Publication and citation links of journal

The colours in the figure indicate cluster, node size indicates publications and link thickness indicates collaboration. According to the bibliometric analysis, the top 5 journals with the highest number of citations were Journal of Teaching in Physical Education (n:1941, total link strength: 25848), Sports Education and Society (n:1178, total link strength: 12018), Physical Education and Sport Pedagogy (n:1131, total link strength: 13372), Quest (n:944, total link strength:

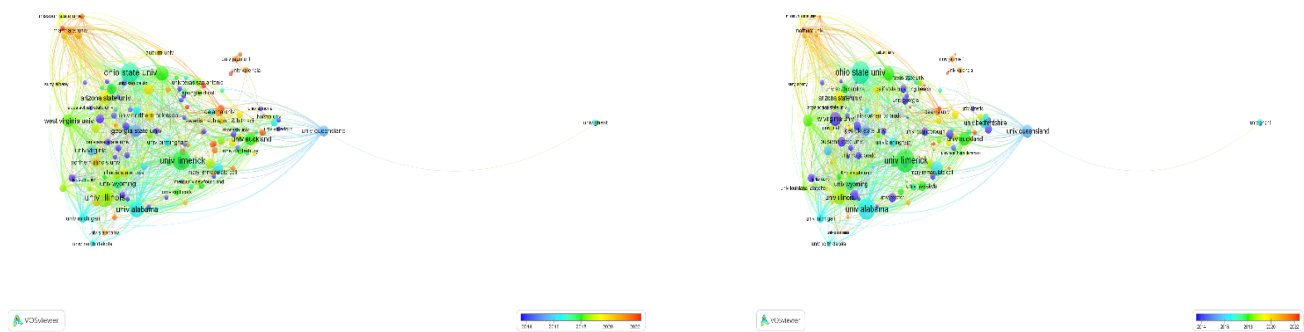
13336) and European Physical Education Review (n:751, total link strength: 16644).

**5. Bibliometric analysis of the number of publications and citations of institutions**

When institutions with at least 3 publications and 3 citations were included in the search criteria, 138 out of a total of institutions were analysed.

Table 5.1. Top 10 institutions by number of publications and citations

Institutions	Publication Number	Total link Strength	Institutions	Number of Citations	Total link Strength
1. The Ohio State University	51	26408	1. University of Limerick	900	20693
2. University of Limerick	49	20693	2. The Ohio State University	863	26408
3. University of Illinois	48	36353	3. University of Alabama	724	26977
4. University of Alabama	35	26977	4. Norwegian Sch Sport Sciences	358	6417
5. Kent State University	29	15699	5. Kent State University	335	15699
6. West Virginia University	22	16790	6. University of Illinois	333	36353
7. University of Auckland	21	9509	7. West Virginia University	332	2572
8. Georgia State University	21	8217	8. University of Auckland	294	9509
9. Arizona State University	19	7597	9. University of Queensland	283	5300
10. Norwegian Sch Sport Sciences	16	6417	10. University of Wyoming	244	9347



A: Number of publications by institutions

B: Number of citations by institutions

Figure 5.1. Publication and Citation Links of Institutions



According to the data obtained, the top 5 institutions with the highest number of publications were The Ohio State University (n:51, total link strength:26408), University of Limerick (n:49, total link strength:20693), University of Illinois (n:48, total link strength:36353), University of Alabama (n:35, total link strength:26977) and Kent State University (n:29, total link strength:15699). The institutions with the highest number of citations were University of Limerick (n:900, total link strength: 20693), The Ohio State University (n:863, total link strength: 26408), University of

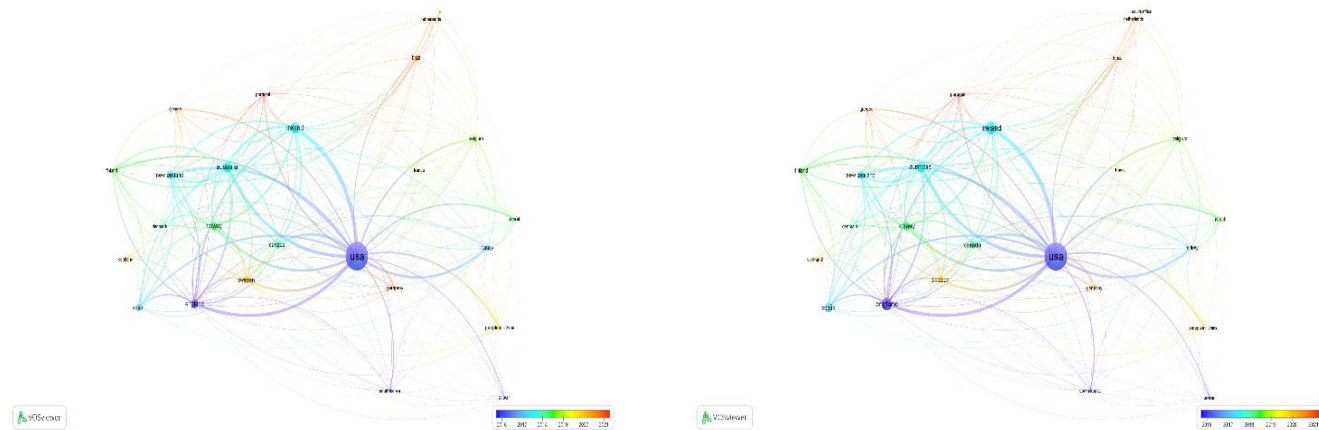
Alabama (n:724, total link strength: 26977), Norwegian Sch Sport Sciences (n:358, total link strength: 6417) and Kent State University (n:335, total link strength: 15699).

## 6. Bibliometric analysis of the number of publications and citations of countries

Among 47 countries with at least 3 publications and at least 3 citations, 25 countries that met the search criteria were included in the analysis.

**Table 6.1.** Top 10 countries by number of publications and citations

Countries	Publication Number	Total link Strength	Countries	Number of Citations	Total link Strength
1.USA	413	44133	1.USA	4783	44133
2.Ireland	61	18285	2.Ireland	1029	18285
3.Australia	61	15228	3. England	950	12385
4.England	42	12385	4. Australia	717	15228
5.New Zealand	30	10438	5. Spain	546	5310
6.Norway	34	9824	6. Norway	480	9824
7.Sweden	29	9479	7. New Zealand	386	10438
8.Canada	29	8825	8. Canada	310	8825
9.Spain	29	5310	9. Sweden	295	9479
10.Türkiye	19	5159	10.Finland	178	3026



**A:** Number of publications of countries

**B:** Number of citations of countries

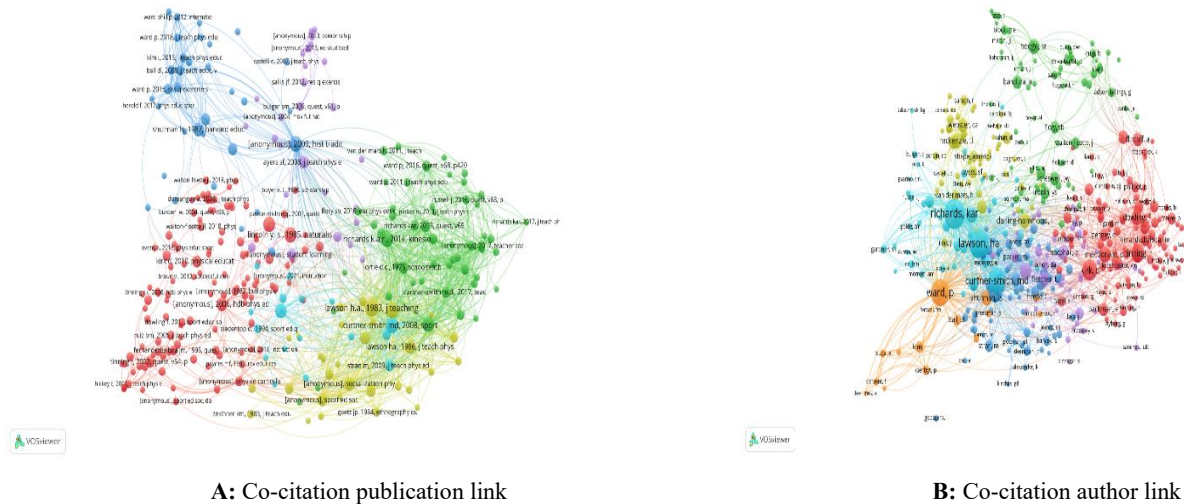
**Figure 6.1.** Bibliometric analysis of the number of publications and citations of countries

According to the results of the analysis, the top 5 countries with the highest number of publications were the USA (n:413, total connection power: 44133), Ireland (n:61, total connection power: 18285), Australia (n:61, total connection power: 15228), England (n:42, total connection power: 12385) and New Zealand (n:30, total connection power: 10438). Turkey (n:19, total link strength:5159) ranked as 10th among 25 countries. The top 5 countries with the highest number of citations were the USA (n:4783, total link strength:44133), Ireland (n:1029, total link strength:182285), England (n:950, total link strength:12385), Australia (n:717,

total link strength:15228) and Spain (n:546, total link strength:5310). Turkey (n:122, total link strength:5159) ranked as 11th.

## 7. Co-citation and source bibliometric analysis

According to the analysis criteria, 280 out of with at least 10 citations in the co-citation source category were included in the analysis. In the co-citation author category, 433 out of authors with at least 10 citations were included in the analysis.



**Figure 7.1.** Bibliometric analysis of the number of co-cited publications and authors

According to the bibliometric analysis, the top 5 publications with the highest number of co-citations were belong to Lawson (Lawson, 1983) (n:70 citations, total link strength: 1291), (n:59 citations, total link strength: 1092), Richards (2014) (n:58 citations, total link strength: 1015), Anonymous (2009) (n:57, total link strength: 925) and Curtner-Smith (2008) (n:56 citations, total link strength: 1122). The top 5 authors with the highest number of co-citations were Richards (n:325 citations, total link strength: 8478), Lawson (n:294, total link strength: 7658), Ward (n:257 citations, total link strength: 6204), Curtner-Smith (n:233 citations, total link strength: 6344) and Kirk (n:162 citations, total link strength: 4067).

## DISCUSSION

In this study, a comprehensive bibliometric analysis of physical education teacher education studies in the category of educational research and sports sciences was conducted. The developmental links and tendencies of physical education teacher education research were presented systematically with numerical and visual links. The results of the research reveal the authors, countries and journals that produce the most publications, and also present the highest citation rates.

When the keywords link was analysed, it was seen that the most repeated keywords were physical education and physical education teacher education. The fact that physical education and physical education teacher education were in the same clusters and different clusters means that the two words have more connections and are used in related studies.

The analyses revealed that the United States of America was the leading country in terms of both publications and citations. Ireland maintained the same ranking in terms of both publications and citations as the USA. The fact that the USA ranks first in similar studies supports our study (Peng & Hu, 2022; Zhou, 2023). It can be thought that the USA being the first country may be due to the American journals being in first place in the ranking of journal publications and citations. It was remarkable that Turkey ranks 10th among 25 countries in terms of publications and 11th in terms of citations. There were 266 journals originating from Turkey in

total in WOS and only one of them was included in the sports sciences category. In this respect, Turkish authors have to send their publications to journals abroad. Most journals abroad charge article processing fees or publication fees. In Turkey, except for academic incentives and the TUBITAK International Scientific Publications Incentive Programme, there is no funding support similar to other countries.

When the number of publications of the institutions was analysed, it was seen that "The Ohio State University" ranked in first place. Founded in 1870, The Ohio State University is located in Columbus, the capital and most populous city of the US state of Ohio (*Ohio Eyalet Üniversitesi*, n.d.). It is known that American universities are always at the centre of the world rankings. According to the 2024 QS (Quacquarelli Symonds) World Rankings (*QS World University Rankings: Top Global Universities 2023.*, n.d.), The Ohio State University ranks 151st among 1500 institutions. It is also among the best public universities in America. When the QS World Rankings are analysed, it is noticeable that the top 25 institutions are dominated by universities in the United States of America. It is seen that this institution, which is the leader in publication ranking, ranks second in citation ranking. "The University of Limerick", which ranks first in the citation ranking and second in the number of publications, is a state university established in Ireland in 1989. According to the 2024 QS World Rankings, it is ranked 426th. It is thought that the fact that both institutions are well-established institutions with high recognition affects this ranking.

The Journal of Teaching in Physical Education (JTPE), the American journal with the highest number of publications and citations, includes a discussion of current issues of interest to physical educators at all levels. JTPE is approved by the National Association for Sport and Physical Education's Academy of Curriculum and Instruction and the International Association for Physical Education in Higher Education. The journal began publication in 1996 and publishes 4 issues per year. The publisher of the journal was Human Kinetics, the index of the journal was SSCI, impact factor (2.8), H-index (65) and the journal was classified as Q1. The UK-based journals "Physical Education and Sport Pedagogy" and "Sports Education and Society" also rank high in terms of both publications and citations. Physical Education and Sport

Pedagogy Journal started its publication life in 2010 and 6 issues were published annually. The publisher of the journal was Taylor and Francis Ltd., the index of the journal was SSCI, impact factor (3.6), H-index (48) and the journal was (Q1) class. Sport Education and Society started its publication life in 1996 and publishes 9 issues a year. The publisher of the journal was Routledge, the index of the journal was SSCI, impact factor (2.9), H-index (74) and the journal was in the Q1 class. According to Zhou, 2023 bibliometric analysis of journals related to physical education, it was seen that the Journal of Teaching in Physical Education ranked first. It can be thought that the fact that all of these journals were in the Q1 quartile and that the publishing houses were well-established and reliable publishing houses positively affects the citations to the publications made in these journals.

When the academic information of the author K. Andrew R. Richards, who lead in the ranking of the most publications and citations, was examined; It was seen that he works at the University of Illinois at Urbana-Champaign and his fields of study were physical education, sports pedagogy, physical education teacher education, professional socialisation. At the same time, the author had 160 publications scanned in WOS. The high H-index (36) explained the reason why the author was the leader in the field. Zhou (Zhou, 2023) examined the bibliometric analysis of online education in sports, and although K. Andrew R. Richards ranked first, the author drew attention to Richards' studies mostly for physical education teachers. Phillip Ward, who ranked second in the author ranking and third in the citation ranking, works at The Ohio State University and his field of study is physical education, teacher education and sports pedagogy. The author also had 42 publications indexed in WOS. His H-index was (48). Similarly, Ann MacPhail, who ranks third in the publication rankings and second in the citation rankings, works at the University of Limerick, the leading institution in the citation rankings. Price, 1963 stated that articles on the same subject were written by a highly productive group of academics and that the number of these authors was approximately equal to the square root of all authors. In this study, the fact that the authors were internationally recognised in the field and pioneered other authors may positively affect the publication and citation rankings.

The most cited publication was the research article published by Richards et al. in 2018 with the title "Addressing Physical Education Teacher Socialization Through Standards-based Reform of Physical Education Teacher Education" (Richards et al., 2018). The second publication titled "Understanding the Realities of School Life: Recommendations for the Preparation of Physical Education Teachers" was also published by Richards and colleagues (Richards et al., 2013). The publication provided a review of the organizational challenges faced by beginning physical education teachers and offered suggestions on how teacher education programmes can better prepare pre-service teachers to overcome these challenges. In the third place, "The impact of initial teacher education on understandings of physical education: Asking the right question" was published by Chróinin and Coulter, 2012. The study emphasized the complexity of addressing understandings in teacher education contexts.

Hal A. Lawson's study "Toward a Model of Teacher Socialization in Physical Education: The Subjective Warrant, Recruitment, and Teacher Education", published in the Journal of Teaching in Physical Education, led a number of co-authored publications. Lawson had joint publications with Curtner-Smith, who ranked second in the same category, in the journal Sports Education and Society, which ranked fifth in the publication ranking and second in the citation ranking. Zhou (2023) reached similar results in his study. Especially the impact factor in journals is an important determinant and it is thought that the fact that the authors who are in the leading position in the citation ranking have publications in journals with high impact factors affects the ranking. It is seen that K. Andrew R. Richards, who has the highest number of co-authored citations, collaborates with Hal A. Lawson and Curtner-Smith, who rank second and third in the same category.

As a result, in the clustering analysis of the keywords by including the criteria specified in the WOS database, it was determined that the themes of physical education, physical education teacher education, teacher education, and teacher development were formed. The main journals publishing in this field were the Journal of Teaching in Physical Education, Physical Education and Sport Pedagogy and Sport Education and Society. It has been determined that American academics are dominated by Irish academics in terms of density and mean number of citations. It has also been determined that the publisher of the journal is very important in the number of academic citations and publications in the country. However, it was also observed that studies on physical education teacher education are increasing gradually. In terms of international visibility, the language of publication should be English.

## Conclusions

Science is a phenomenon which performed for society and should be disseminated to as many people as possible, rather than a phenomenon that is performed for oneself and kept to oneself. The spreading of science is possible through the scientist and the source through which the scientist communicates his/her work to others. The more quality and useful publications a scientist makes and the more quality channels through which he/she communicates his/her work to others, the more people can benefit from the work. The results obtained from the research results and the suggestions determined according to these results are grouped under two headings: suggestions for scientists and their training and suggestions for the channels that publish the studies.

For the education of scientists;

- In scientist training processes, especially in the master's and doctoral education stages, scientist candidates should be provided with the qualifications to publish internationally. In addition to field-specific education, issues such as language education, ethical principles, and quantitative and qualitative analysis should be given importance; scientist candidates should be supported in international cooperation issues through both the Erasmus programme and international bilateral partnership programmes.



- Scientist candidates can be sent to study with professors who have high potential to publish internationally in Turkey and abroad. For example, in this study, Kevin Richards was identified as the most published academic. If a PhD student or an academic who has completed his/her PhD goes to Richards and continues his/her education or receives post-doctoral education, it will increase the potential of the scientist candidate to publish.
- In addition to the previous suggestion, programmes such as the TUBITAK 3501 Career Development Programme, which aims to encourage the work of PhD scientists who are just starting their careers by providing project support, may give priority to candidates who prefer academics or countries with high publication potential.
- Universities, which are the source of academic work and science, should include high-impact journals in their libraries.
- Again, universities should organize trainings for publishing in journal with a high degree of influence on the process of educating scientists.
- For channels that publish scientific studies;
- The publication channel should give importance to qualitative issues such as originality, topicality and suitability for the publication channel rather than quantitative increase.
- Journals that want to improve the quality of their publications should cooperate with the editors of the most successful journals according to the research results and improve the quality of their journals.

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## GENİŞLETİLMİŞ ÖZET

Toplumun değişen ve gelişen ihtiyaçlarına yönelik bireylerin yetiştirilmesi adına nitelikli öğretmenlere ihtiyaç duyulmaktadır. Dolayısıyla öğretmen eğitimi üzerinde durulması gereken önemli konulardan biridir. Bir öğretmenin mesleki açıdan yeterliliğinin, sunacağı eğitimin kalitesinin önemli bir belirleyicisi olduğu düşünülebilir. Mesleki açıdan öğretmen ne kadar yeterli olursa öğrenciler için öğrenmelerini de olumlu yönde etkileyecektir (Hattie, 2003). Öğrencilerin öğrenmesi ve başarısı büyük ölçüde öğretmenin yeterliliğine bağlı olduğu için öğretmenlerin eğitimi her zaman bilimsel araştırmalara konu olmaktadır (Fröberg & Lundvall, 2022; MacPhail et al., 2023; McEvoy et al., 2015; Tannehill, n.d.). Literatür incelendiğinde yayınlar beden eğitimi öğretmen eğitimi ile ilişkili olabilecek diğer konu başlıkları altında da toplandığı görülmektedir. Örneğin öğretmen yetiştirme programlarının amaçlarından biri, hizmet öncesi öğretmenlerin öğretmenlik mesleğine başlamak için sağlam bir temele sahip olmalarını sağlamaktır (Goodnough et al., n.d.). Öğretmenlerden beklenen rollerin geliştirilmesi özellikle öğretmen eğitimi gerekli kılacaktır. Öğretmen eğitimi için öğretim programında teorik ve pratik yönler arasında bir denge kurulması gerekmektedir. Bir diğer araştırma da ise bilimsel ve teknolojik gelişmenin sağladığı yeni imkanlarla birlikte kendini mesleki anlamda geliştirebilen öğretmen fark yaratabilmektedir (Oberländer et al., 2020). Çalışmalar incelendiğinde sadece beden eğitimi öğretmen eğitimi başlığı altındaki yayınların bibliyometrik analizin sunulduğu bir çalışmaya rastlanılmamıştır. WOS veri tabanında beden eğitimi öğretmen eğitimi ile ilgili yayınların günümüze kadar olan mevcut durumunun bibliyometrik analizi ile sunulması gelecekte yapılan çalışmalara yol göstermesi adına önemli görülmektedir. Bu bağlamda WOS veri tabanında eğitim

araştırmaları ve spor bilimleri kategorisinde yer alan beden eğitimi öğretmen eğitimi başlıklı yayınların bibliyometrik analizinin sunulması amaçlanmıştır.

**Araştırma Modeli:** Araştırmada çeşitli veri tabanlarından elde edilen veriler kullanılarak bibliyometrik analiz yöntemi kullanılmıştır. Bibliyometrik analiz, büyük hacimli bilimsel verileri keşfetmek ve analiz etmek için kullanılan popüler ve titiz bir yöntemdir. Bu anlamda bibliyometri, bilimsel yayınların ya da belgelerin yazar, yazarlar arası işbirliği, konu, atıf yapılan yazar, atıf verileri, yayın bilgisi gibi belirli özelliklerinin istatistiksel olarak görsel harita ve ağlarla sunmayı sağlayan nicel ölçümlere dayanmaktadır (Fahimnia et al., 2015; Krauskopf, 2018; Yılmaz, 2021).

**Araştırma Grubu:** Araştırmanın örneklemini Web of Science veri tabanında ‘Eğitim Araştırmaları ve Spor Bilimleri’ kategorisinde 1991-2023 yılları arasında ‘beden eğitimi öğretmen eğitimi’ ile ilgili yayınlanmış 697 yayın oluşturmaktadır. Ulaşılan yayınlarda tüm doküman türleri değerlendirmeye alınmıştır. Veriler WOS veri tabanında; ‘Social Science Citation Index’ (SSCI) (n:506), ‘Science Citation Index-Expanded’ (SCI-E) (n:328) ve ‘Emerging Sources Citation Index’ (n:180) indekslerde taranan dokümanlardan elde edilmiştir.

**Veri Toplama Araçları:** WOS veri tabanında anahtar sözcük olarak ‘physical education teacher education’ yazılmış; çıkan sonuçlar filtrelenmiştir. WOS kategorisi: ‘education educational research and sport science’, WOS indeks: ‘SCI-E, SSCI or ESCI’ ve yıllar: ‘all years’ olarak filtrelenmiştir. Bu kriterleri sağlayan toplamda 697 yayına ulaşılmıştır. Elde edilen veriler veri tabanında bulunan ‘Export-Tab Delimited File-Full Record and Cited References’ yönergeleri ile ‘txt’ uzantılı dosyalar her biri 500’er adet olmak üzere toplamda 2 dosya indirilmiştir. İndirilen dosyalar VOSviewer analiz programına aktararak analize hazır hale getirilmiştir.

**Verilerin Analizi:** Araştırmada toplanan veriler VOSviewer (1.6.19) bibliyometrik analiz programında analiz edilmiştir. VOSviewer kelime anlamı olarak ‘Visualization of Similarities (Benzerliklerin görselleştirilmesi)’ teknolojisini ifade etmektedir ve sıklıkla kullanılan bu analiz yöntemi 2010 yılında geliştirilmiştir (van Eck ve Waltman, 2010). VOSviewer ile bilimsel literatür analizi sayesinde en çok atıfta bulunulan yayınlar, araştırma gruplarının ağ yapısını, çoklu yazar çalışmalarında yazarların arasındaki iş birliğini vb. verileri görselleştirilmiş şekilde görmek mümkündür.

**Bulgular:** Yapılan bibliyometrik analiz sonucuna göre en fazla kullanılan ilk 5 anahtar sözcük sırasıyla; beden eğitimi (n:155), beden eğitimi öğretmen eğitimi (n:154), öğretmen eğitimi (n:71), yüksek öğrenim (n:41) ve sosyal adalet (n:26) olduğu saptanmıştır. E en fazla yayına sahip olan ilk 5 yazar sırasıyla; K. Andrew R. Richards (n:38, bağlantı gücü: 67), Phillip Ward (n:31, bağlantı gücü: 93), Ann MacPhail (n:24, bağlantı gücü: 20), Amelia Mays Woods (n:15, bağlantı gücü: 39) ve Kim C. Graber (n:14, bağlantı gücü: 29) olduğu saptanmıştır. E en fazla atıf sahibi olan ilk 5 yazar sırasıyla; K. Andrew R. Richards (n:446, toplam bağlantı gücü: 67), Ann Macphail (n:439, toplam bağlantı gücü: 20), Phillip Ward (n:320, toplam bağlantı gücü:93), Lynn D. Housner (n:249, toplam bağlantı gücü:11) ve Melissa Parker (n:239, toplam bağlantı gücü:24)’dır. Dergi yayın ve atıf sayısı

incelendiğinde en fazla yayın ve atıf sayısına sahip olan Journal of Teaching in Physical Education dergisi dikkat çekmektedir. The Ohio State University (n:51, toplam bağlantı gücü:26408) yayın sayısında birinci sırada yer alırken, University of Limerick (n:900, toplam bağlantı gücü:20693) ise atıf sayısında lider konumda olduğu tespit edilmiştir. Amerika Birleşik Devlet'lerinin hem yayın hem de atıf sayısında lider ülke konumunda olduğunu ortaya çıkarmıştır. İrlanda, Amerika gibi hem yayın hem atıf bakımından ikinci sırada yer almaktadır.

**Sonuç:** Sonuç olarak WOS veri tabanında belirtilen kriterler dahil edilerek anahtar kelimelerin kümeleme analizinde beden eğitimi, beden eğitimi öğretmen eğitimi, öğretmen eğitimi, öğretmen gelişimi, temalarının olduğu tespit edilmiştir. Bu alanda yayın yapan başlıca dergiler Journal of Teaching in Physical Education, Physical Education and Sport Pedagogy ve Sport Education and Society olduğu görülmektedir. Konu ile ilgili Amerikalı akademisyenlerin yoğunlukta ve ortalama atıf sayısında İrlanda'nın hakimiyetinde olduğu, ülkenin akademik anlamda atıf ve yayın sayısının miktarında dergi yayıncısının çok önemli olduğu da belirlenmiştir. Bununla birlikte beden eğitimi

öğretmen eğitimi ile ilgili çalışmaların giderek arttığı da gözlemlenmiştir. Araştırma bulgularından elde edilen sonuçlar ve bu sonuçlara göre belirlenen öneriler bilim insanına ve yetiştirilmesine yönelik öneriler ve yapılan çalışmaları yayınlayan kanallara yönelik öneriler olmak üzere iki başlık altında toplanmıştır. Bilim insanı yetiştirilmesine yönelik olarak; Bilim insanı adayları yurt içinde ve yurt dışında uluslararası yayın yapma potansiyeli yüksek hocaların yanına eğitime gönderilebilir. Örneğin bu çalışmada Kevin Richards en çok yayın yapan akademisyen olarak belirlenmiştir. Bir doktora öğrencisinin ya da doktora bitirmiş bir akademisyenin Richards'ın yanına giderek eğitimine devam etmesi ya da post-doktora eğitimi alması bilim insanı adayının yayın yapma potansiyelini artıracaktır. Bir önceki öneriye ek olarak TÜBİTAK 3501 Kariyer Geliştirme Programı gibi kariyerlerine yeni başlayan doktoralı bilim insanlarının çalışmalarını proje desteği vererek teşvik etmeye yönelik programlar yayın yapma potansiyeli yüksek akademisyenleri ya da ülkeleri tercih eden adaylara öncelik verebilir. Bilimsel çalışmaları yayınlayan kanallara yönelik olarak; Yayın kanalı niceliksel artıştan ziyade konunun özgünlüğü, güncelliği ve yayın kanalına uygunluğu gibi niteliksel konulara önem vermelidir.