

Visual Analysis on the Hot Spots and Frontier of Physical Education Reform in Colleges and Universities

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Keywords: Physical education reform; Colleges and universities; Knowledge graph; Hot frontier

Abstract: Objective: To summarize the hot spots and frontiers of the reform of physical education in colleges and universities in China. Methods By using Cite Space V software to statistically analyze and visually interpret the relevant literature about physical education reform in colleges and universities in core journals collected by CNKI. Results: The mapping knowledge of author cooperation, institutional cooperation, high-frequency keywords co-occurrence, time zone view and keywords of citation burst sequence diagram were drawn. Conclusion: The first conclusion, the knowledge evolution of physical education reform can be divided into three stages: the first stage (1996-2004), the related research mainly focuses on “Health First”, which is the guiding ideology. This paper probes into such problems as the interactive relationship between the teaching reform of physical education and the concept of life-long physical education and so on. The second stage (2005-2014) mainly focuses on the use of college physical education option “Triple independent” teaching and so on and higher vocational colleges physical education curriculum reform is also within. The third stage (2015-2018) mainly focuses on the research on the theory and practice of physical education, the construction of a case base of physical education under big data’s thinking, the practice and theoretical guidance of football teaching and so on. The research on the theory and teaching practice of physical education strategy, the teaching reform of public physical education, the establishment of teaching case base and the practice of football teaching are the frontier topics of physical education reform. The second conclusion, the high frequency keywords are mainly divided into 10 categories including the research on the reform of school physical education teaching in schools, the research on the introduction of tea culture into the reform of physical education, the construction of curriculum system of physical education, and the reform of physical education in higher vocational colleges, the reform and practice of physical education content, the cultivation of college students' sports health ability, the cultivation of students' physical exercise consciousness, the "Triple independent" teaching model in physical education, and the construction of case teaching database of physical education courses as well as teaching methods of physical education reform.

1. Introduction

According to the report on the *development of China's adolescent Institutional Health Development (2016)*, the *College Students' Physical fitness* is declining day by day [1]. Besides, according to the Planning Outline of "*Healthy China 2030*" higher requirements for physical education has put forward [2]. However, the teaching of physical education generally exists singly, the model is solidified, the teaching concept is backward, and the reform of physical education has a

long way to go [3,4]. The arrival of the new era has given birth to kinds of teaching models, such as Distance Education, MOOC, E-Learning, Presentation-Assimilation-Discussion Class and so on, in which higher requirements for the reform of physical education are established, so the reform is imperative. At present, what is the development trend of physical education reform in China? What are the hot spots and frontiers of research? In the face of massive literature, accurate grasp, management and processing, it is just but effective to do with the corresponding scientific measurement tools. This paper attempts to use Cite Space V visualization software to analyze the relevant core literature of physical education reform collected by CNKI, to obtain the research hotspot and development trend of physical education reform, to contribute to the advancement of physical education reform.

2. Subjects

Select CNKI database, type: journal, advanced retrieval. Search conditions: "Subject: 'physical education reform' and 'colleges and universities' and 'higher vocational colleges' and 'physical education colleges', precise", from Year 1996 to Year 2018", Source category: "Core Journals, CSSCI", the search time is April 18, 2019, and a total of 1351 articles were searched. In the end, 1330 articles were included in the analysis with unrelated literature removed.

3. Methods

By using the scientific literature analysis tool of Cite Space V (version number is 5.0.R7SE (64-bit), the mapping knowledge of author cooperation, institutional cooperation, high-frequency keywords co-occurrence, time zone view and keywords of citation burst sequence diagram were drawn, and the highlighted keywords are detected [5].

Parameter settings: Time slicing: from 1996 to 2018, #years per slice 3; In turn, select Author, Institution, Keyword; Selection Criteria: Top 20 per slice; In turn, select Pathfinder, Pruning the merged network; Term Source, Links and Visualization select system default. In the Keyword clustering, LLR is used to extract the clustering term and draw the knowledge map, which meets the requirements of the module value Modularity $Q=0.7927 > 0.3$, the remarkable community structure that means Silhouette $=0.7108 > 0.5$ [6], and index requirements of clustering responsibility.

4. Results

4.1 Analyze of knowledge graph of research hotspots.

High-frequency keyword co-occurrence network is collected by the operation of Cite Space V software and the selection of keywords and clustering terms is extracted through LLR to drown knowledge graph. Colleges and universities, physical education, teaching model, quality education, life-long physical education, higher vocational education, countermeasures and other keywords appear with high frequency and high centrality. It is a hot topic in the field of physical education reform. The cluster results show that the research hotspots in the field of physical education reform, represented by high-frequency keywords, are mainly divided into 10 categories: the first category includes school physical education, innovation, physical education teaching theory, teaching practice and so on. The second category includes tea culture, teaching reform, and teaching objectives. The third category includes physical education major, curriculum system, and application ideas and so on. The fourth category includes physical education teaching, the market economy, school physical education, public physical education and so on. The fifth category

includes college physical education, physical education teaching content, reform practice and so on. The sixth category includes college students, sunshine sports, and national fitness and so on. The seventh category includes life-long physical education, health first, college physical education reform, physical exercise and so on. The eighth category includes "Triple independent" teaching, college physical education, college physical education curriculum and so on. The ninth category includes big data, case teaching, and physical education curriculum teaching and so on. The tenth category includes teaching mode, club, and public physical education and so on.

4.2 Knowledge evolution and frontier graph.

The knowledge evolution of physical education reform can be divided into three stages (Figure. 1): Stage 1 (1996-2004), the related research mainly focuses on taking health first as the guiding ideology. This paper probes into the interactive relationship between the teaching reform of physical education and the concept of life-long physical education, the cultivation of the consciousness of physical exercise and the construction of the teaching model of the "club". The main means is the teaching method of department instruction. Stage 2 (2005-2014) mainly focuses on the application of the "Triple independent" teaching mode of college sports options and the reform of the sport teaching evaluation system. The reform of the physical education curriculum in higher vocational colleges is also one of the concerns, and students are the object of attention as well as safety first is the guiding ideology. Stage 3 (2015-2018) mainly focuses on the research on the theory and practice of physical education, the construction of the case base of physical education under big data's thinking, the practice and theoretical guidance of football teaching, and so on. Among them, the research on the theory and teaching practice of physical education strategy in colleges and universities, teaching reform of public physical education, the establishment of teaching case base and the practice of football teaching is the frontier topics in this field.

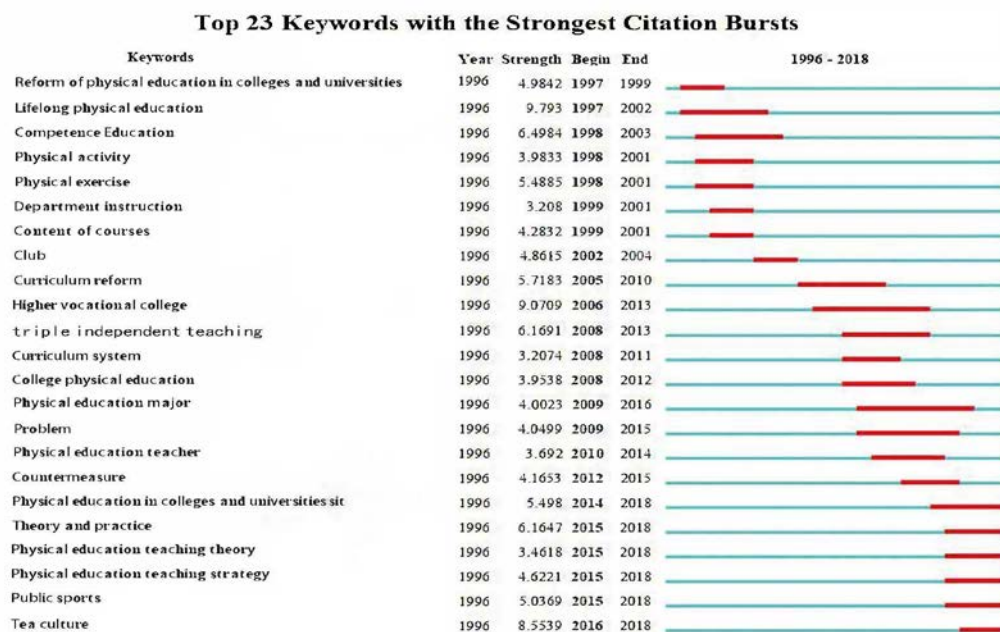


Figure 1 Top 23 Keywords with the Strongest Citation Bursts

5. Discussion and Analysis

According to the centrality of keywords in the clustering results and the identification words displayed by the LLR algorithm, the research hotspots of physical education reform are consolidated into ten aspects:

The main contents of this paper are as follows: The first aspect, the research of school physical education teaching reform: continue to promote the school physical education teaching reform, the relevant theoretical research has also been developed. In the aspect of teaching, we should construct the curriculum and evaluation system, optimize the teaching model and promote the teaching practice; in the aspect of teaching management, we should optimize the performance management mechanism and the security risk management mechanism [7]. The second aspect, the research on the introduction of tea culture into the reform of physical education: physical education is basic, which pays attention to the teaching of skills, but lacks humanistic education, so tea culture and physical education should be combined, which is beneficial to the shipment of students' humanistic accomplishment [11]. The third aspect, research on the construction of the curriculum system of physical education specialty: with the implementation of the new curriculum reform of full-time basic education, new requirements for the current curriculum system of physical education specialists are demanded. It is necessary to reform and innovate in professional training objectives, curriculum content and curriculum evaluation, and construct a scientific and reasonable curriculum system of physical education to meet the needs of the new curriculum reform of basic education, generalist education and the development of professional education in the new period [12]. The fourth aspect, research on the reform of physical education in higher vocational colleges: the teaching goal of physical education is one-sided in higher vocational colleges, the orientation is not clear, the target is not strong, the curriculum is not good, the characteristics of teaching content and professionalism are not prominent, and the prospect is worrisome. Physical education in higher vocational colleges should uphold the concept of "Health first", and take social needs as the guide, promote the all-round development of students, highlight the combination of vocational education and physical education teaching, and form a modern teaching mode of higher vocational physical education curriculum, so as to better promote the development of physical education in higher vocational colleges [13]. The fifth aspect, research on the reform and practice of physical education teaching content, which should lay an emphasis on the scientific and complete theoretical content, practical and interesting content, and promote the coordinated development of students' body and mind and train students to set up the thought of life-long physical education [16,17]. The sixth aspect, research on the cultivation of college students' sports health ability: the promulgation of *the outline of National Fitness Program* gives a direction for college sports, injects a new motive force, deepens sports reform, trains and develops students' sports ability, promotes the organic combination of students' sports knowledge, technology, skills and intelligence, and establish the concept of life-long physical education [18,19]. The seventh aspect, research on cultivating students' consciousness of physical exercise: the reform of physical education must meet the requirements of quality education, set up the concept of comprehensive education of physical education, cultivate the concept of "Health first", set up the concept of life-long physical education, and strengthen the physique of students so as to meet the needs of all-round development of talent training needs in the aspects of society, moral, intellectual, physical and aesthetic [20]. The eighth aspect, research on the "three Autonomy" physical Education Teaching Mode in Colleges and Universities: since the Ministry of Education promulgated and implemented *the National General College Sports Curriculum Teaching Instruction Summary* in 2002, the "Triple independent" teaching was formally established with the concept of "People-oriented" and "Health first", and the idea of "students as the main body and teachers as the leading" to meet the individual needs of students, which to some extent the comprehensive quality and practical ability of college students has improved [23]. The ninth aspect, research on the construction of case teaching database of physical education curriculum: the establishment of case teaching resource database has effectively

promoted the reform of physical education curriculum; however, there are a series of problems, such as data overloading, mining shallow, left-behind platform development, insufficient resource sharing and interaction between teachers and students, and so on. Therefore, it is necessary to constantly update data resources, dig deeply data values, and promote platform resource sharing and make the management of the database scientific and standardized [27,28]. The tenth aspect, research on the teaching methods of physical education reform: physical education pays too much attention to the teaching of basic skills so that the progress of teaching reform is slow. We need to improve the teaching theory and improve the teaching methods to promote the reform of physical education [29].

6. Conclusion

There are 1330 core periodicals of physical education reform from 1996 to 2018. The main types of periodicals are pedagogy and physical education. The top three journals are Education and Vocation, China Adult Education, Journal of Physical Education. The number of papers published in periodicals can be divided into three stages: a slow growth period, rapid growth period and stable maturity period.

The knowledge evolution of physical education reform can be divided into three stages.

High-frequency keywords in the field of physical education reform are mainly grouped into 10 categories.

Acknowledgements

The study is supported by the research fund for a pilot project for comprehensive reform of national physical education specialty, undergraduate teaching reform program and postgraduate advanced sport physiology projects of Yunnan Normal University. Many references had to be deleted to shorten this review, and I apologize to authors and readers for work that could be cited. I thank my tutor, Professor S.H. Song, for her careful guidance in the writing of the thesis, and Professor C.G. Gao and assistant B. Zhang for their valuable discussions.

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