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Bibliometric analysis-based chinese sports academic development and change research

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ABSTRACT

The paper applies a series of research methods, according to research, it shows that in recent years, China researches on sports academics present rising trend, sports research strength distribution is extensive, and spread all places in the province. But every place research degrees gap is obvious, development is imbalances. In recent years, China sports academic development has already got involved in every main sports event, but it still has problems, every main sports event and its sub event research strength has differences, therefore it has more advantageous events; and meanwhile it also has some weak events, even are blank points. The paper also puts forward suggestions and some solutions for sports academic development and changes process existing problems.

KEYWORDS

Sports academy; Development and change; Bibliometrics; Scientific research; Sports literatures.



INTRODUCTION

Twenty-first century is an era that science and technology are rapidly developing, information has already become a kind of resource wealth in contemporary social development, its transmission channel, exchanging methods will also constantly change followed by social development. But thesis as academic information communication basic ways, it will never be obsolete in the rapidly development of science today. Therefore, sports circles thesis also perform extreme big effects in sports development, it not only is description and record in sorts science research result, and meanwhile it also makes huge contributions to human academic communication, scientific results popularization, therefore, he plays extreme important roles in recent years' sports academic development valuable collections and propelling to sports development. Thesis not only states recognition and opinions on scientific knowledge, but also acquires other scholars and experts' recognition; let more people to learn and accept, so as to keep extension of science. Thesis has gradually become new opinions and new methods places of origin, domestic and overseas many experts keen on academic researches.

Sports as one part of social culture, it plays important roles in people's daily life, it not only can build one's body, but also can enrich people's amateur life, and nowadays, sports are more developing towards professionalization, each item professional sports competitive games are developing. Sports literatures as records that people go in for sports practices, lots of social science and natural science workers have made huge contributions to sports academic researches, they collect numerous useful facts, theories, data, methods, definitions and also records on sports performance, all of these are crystallization of sports scientific research discussion and recognition, and meanwhile it also records numerous successful or failure experiences. These literatures record specific times. In specific regions and certain social conditions, people recognition on sports such discipline and sports technical level forecast future sports science and technology development orientations and trends. In current science and technology developed era, sports circles also penetrate into science technology, it no more is a comprehensive discipline, but gradually fuses social science, natural science and other correlation disciplines, and forms into a comprehensive discipline, therefore, sports involved field becomes wider and wider, research on problems also move towards more professionalization. In sports discipline constantly development, literatures that record sports scientific research achievements are also getting more and more various.

MODEL ESTABLISHMENTS

Pre-modeling preparation

In universities, spare time is more, life is also colorful, and they have more time to participate in sports activities. Then, university sports become important stage that cultivates students' lifelong sports awareness so that have higher requirements on sports teachers, it not only can fulfill teaching tasks, but also possess certain scientific research ability. They release lots of theses every year, become main forces in sports academic circles development, their theses releasing dominants, proportions also get larger, and it contains huge scientific research advantages as TABLE 1.

TABLE 1 : Different types of hierarchical universities released scientific research theses statistics (Unit:article number)

	Regular college course			Junior college			Total	Total	Percentage
	George mason University	Ordinary workers stadium	Total	George mason University	Ordinary workers stadium	Total			
Core journals	181	32	213	2	9	11	224	30.81 %	
Journal of Universities	296	171	467	6	30	36	503	69.19 %	
Total	477	203	680	8	39	47	727		
Percentage	65.61%	27.92%	93.54%	1.10%	5.36%	6.46%			

Correspond to above data; make broken line as Figure 1 shows.

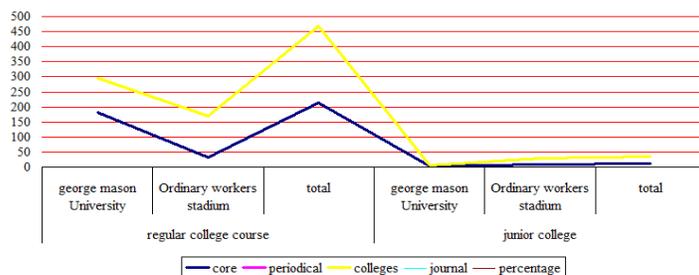


Figure 1 : Different types of level of colleges and universities scientific research papers published statistics

From above analysis, it is clear that regular college course published pieces are obviously higher than junior college published amount, in regular college course, George Mason University is obviously higher than ordinary workers stadium, while junior college is just opposite to it.

Theoretical basis of the paper

The paper according to research purposes, by CNKI Chinese periodicals database, VIP database, it consults sports theses or sports scientific research aspect relative literatures since recent years. According to consulted relative literatures, analyze predecessors' sports theses research status and its development. As TABLE 2 shows:

TABLE 2 : Sports scientific research papers contents distribution

Type	Number of frequency	Percentage
Social sciences	115	23%
Psychology of physical education	120	24%
Human movement science	40	8%
Physical education	10	2%
Exercise training	100	20%
Else	115	23%
Total	500	100%

Correspond to above data, make black-white pie chart, as Figure 2.

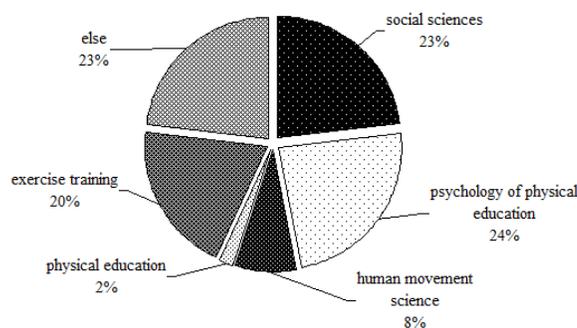


Figure 2 : The content of the sports scientific research paper distribution

People's Republic of China national standard GB7713—87 defines thesis as: thesis is a place that records such professional and scientific research breakthrough and recognized by relative academic circles. Sometimes it can be used to summarize such new principles that have already been applied in practice, and has new breakthrough in practice process, generally the type of theses are used to discuss and exchange and learn in academic circles.

According to their written usage demands, academic type theses can also be divided into two types, communicative thesis and assessment thesis, from which communicative thesis is used to issue in academic journals, let people to learn and exchange, sometimes it also will be read out in academic conferences. Here we talked communicative thesis is scientific research paper that referred in our article.

According to our consulted relative literatures, Qiu Jun-Ping went deeper research and learning in bibliometrics aspect, the method mainly took bibliometric features and literature system as research objects, adopted all kinds of methods to make analytic statistics of literature contents, include quantity relations and their changing rules so on, and then explored one science technology.

By far most of scholars mainly base on formers definitions. Here concepts regarding bibliometrics are from Qiu Jun-Ping conception definition.

Model establishment

Chinese sports academic development process has gone through a relative longer process, scholars have made lots of relative literature on its researches. Now we have enormous literature system, accompanying with bibliometrics. Bibliometrics emergence and development have made huge contributions to Chinese academic aspect researches, which is very universally used in present international academic circles researches. It is used to analyze and estimate one discipline growth and relative literatures contents, quantity, composition and mutual effects relationships, and then estimate the discipline emergence, development, differentiation and mutual penetration. Scientific staff just targeted at acquired these

information, and then analyze acquired its demands contents, grasp scientific and technological development latest dynamics and orientations and then define scientific research topics, test whether research topics are correct and novelty or not; and also should measure one research result used research methods efficiency and so on. Bibliometrics earliest application and sports scientific research aspect is performing its evaluation value, evaluating periodical academic values or research objects. With constant development of Chinese sports, researches on sports academic aspect are also increasingly deepening, literatures research methods are gradually and frequently used in evaluating sports circles academic activities, and constantly propelling to Chinese sports academic aspect research.

In China, Xu Hong-Feng and others earliest adopted citation analysis method, for published six main sports universities journals these that were directly under national sports commission during 1989-1994, they carried out citation statistical analysis from citation language structure, type structure, citation time and others, and made horizontal and vertical comparative research on them with domestic and overseas relative periodicals. Subsequently, regarding citation analysis these successively emerged in every periodical, such as Liu Xue-Song “Twelve sports core journals references literatures statistics and analysis in 2004”, Yuan Yu “Journal of Wuhan sports institute”, Zhang Xue-Yan “Chinese universities sports scientific research status depth and thinking” papers and also citation features academic impacts analysis and so on, these articles, except for researching and analyzing citation type structure, citation time, language structure aspects, they also analyzed from citation sources, quantity, even citation published time, and also citation’s self-citation and non-self-citation as well as others multiple aspects and multiple perspectives, therefore, citation analysis by far has gradually matured in China.

TABLE 3 : Nationwide universities published sports scientific research papers quantity statistics

Name of periodical	Occupied article number (n)	Name of periodical	Occupied article number (n)
Sports science	22	Journal of North University of China	50
Journal of Beijing University of physical education	49	Journal of Shanxi Datong University	54
Chengdu Sport University	36	Journal of Taiyuan University of Technology	16
Journal of Tianjin University of Sport	11	Journal of Shanxi University of finance and economics	47
Sports and science	10	Journal of Shanxi Agricultural University	42
Sports culture guide	9	Journal of Hebei University of Sport	11
Journal of Shanghai University of Sport	3	Journal of Inner Mongolia Normal University	4
China sports science	37	Journal of Changchun University of Technology	1
Journal of Shandong University of Sport	4	Journal of Chongqing Jiaotong University	1
Journal of Xian University of Sport	7	Journal of Taiyuan University of Science and Technology	10
Journal of Wuhan University of Sport	7	Liaoning sports science and technology	4

(Data source :Zhao Yuan-Yuan , Wang Yun-Han and others data collection statistics in “Regarding national universities sports scientific research papers research”)

Correspond to above TABLE 3 data, it makes bar chart, as Figure 3.(Note:horizontal coordinate 1-22 corresponds to above table name of periodicals)

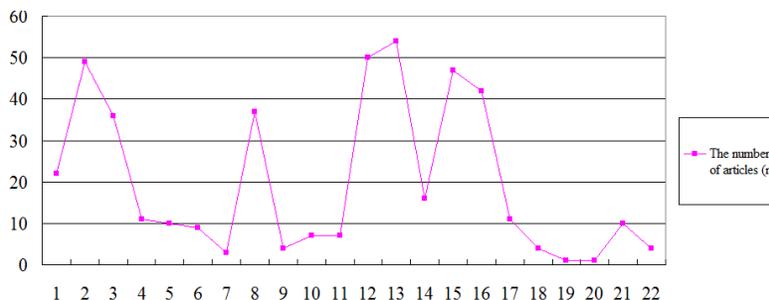


Figure 3 : The national university sports scientific research papers published quantity statistics

With group researches constantly deepening, we find most of sports researchers carry out researches and analysis from group of authors genders, job titles, age, subsidiary organs, and group of authors coauthor situation, coauthor unit type and other aspects, Guo Li-Ping published theses in 2005 were relative representative, it adopted documents literature, logical analysis and mathematical statistics, and combined with Price Law and Lotka's Law, analyzed 13 types of domestic public periodicals published totally 619 pieces of volleyball scientific research papers authors during 1994 to 2003, they carried out systematic and scientific analysis of authors' job titles, genders, age, located units, cooperation ratio and their adopted cooperation ways. And overseas sports aspect academic research was relative little, Xu Hong-Feng analyzed China representative academic journal "Sports science" 1982-1995 recorded 1257 pieces of these authors, coauthor and types in 1997, and then exchanged and cooperated with American "Sports movement research quarterly" and other works. For periodicals papers analysis theses, they were relative little; research in the aspect was still weak. In collected all information, only found one piece of periodicals papers' analysis. With China constantly emphasis on sports academic development, application of bibliometrics in China also gets more and more frequently, for academic activities evaluation, it needs to apply the method, which makes huge contributions.

Zhou Hong-Ping consulted Chinese school physical education mainly research fields' physical education teaching, physical education faculty, physical education course, physical education evaluation, school extracurricular physical education and Chinese and foreign school physical education comparative research and others seven aspects since 1994, investigation result showed that most were physical education teaching papers published papers, physical education course research structure, type, evaluation corresponded to their teaching objectives; physical education faculty team construction papers development orientations had gradually converted into strong ability, broad knowledge, high quality; and physical education evaluation papers were also gradually becoming humanized, integrated ;Extra-curricular physical education research lacked of linking with society, physical education textbook development was backward: Chinese and foreign school physical education comparative research turned to be weaker. Concrete situation is as following TABLE 4 shows: (Note: In following figure, code number respectively represents year 2002 —2010 physical education policies papers yearly published figure).

TABLE 4 : Physical policies paper yearly distribution

Code Number	Year	Theses quantity	Proportion
1	2002	1	0.01
2	2003	5	0.06
3	2004	5	0.06
4	2005	12	0.14
5	2006	7	0.08
6	2007	11	0.13
7	2008	15	0.18
8	2009	14	0.16
9	2010	15	0.18
Total	—	85	1

Correspond to above data, it makes bar figure, as Figure 4.

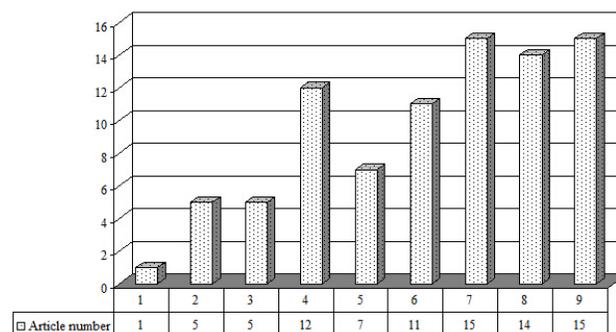


Figure 4 : The annual distribution of sports policy paper

Fujian Normal University's Li Mi (2007) in her master thesis, she made statistical analysis of Chinese 21 kinds of sports academic periodicals published 2196 pieces of social sports research papers bibliometric features since 1996, analyzed these papers' paper quantity year, group of authors, subject distribution and other aspects, according to research, it

showed, current society researches on physical education were mainly description and application-based, for research methods, they mainly adopted literature method, interview method, questionnaire survey and others multiple methods, citation types were relative comprehensive, but also had certain problems, as citation updating speed was slow, citation language distribution was relative irrational.

Yang Hui-Yun (2007) researched on China 1996—2005 ten years physical education type core journals regarding competitive sports gymnastics relevant 392 pieces of papers, made detailed statistical analysis of articles' published papers status, authors situation, and citation relevant status, analyzed and got competitive gymnastics main features and their rules in past ten years, and pointed out literatures, periodicals and authors that had great impacts in such aspect.

Zhang Hua (2008) made analytic statistics of year 1992—2006 Chinese 17 kinds of physical education type academic periodicals published 1544 pieces of football movement scientific research papers bibliometric features, they respectively adopted experts interview, data sorting method, contents analysis method, literatures and logical reasoning as well as other research ways. And meanwhile he also pointed out presently scientific research papers in football circles mainly concentrated on competition analysis, targeted at football training and football development influential social factors as well as other aspects researches, but lacked of researching on football system and other talents selection contents and other aspects.

Hao Yong-Chao (2009) applied bibliometrics method to carry out researching and analysis of domestic public published thirteen kinds of Chinese physical education types regarding Wushu 693 pieces of papers during 2001—2005 from article's published papers status, works status, research methods, citation status and research contents and else, it got the five years Wushu academic papers development main rules and features as TABLE 5.

TABLE 5 : Shanxi province Universities physical education teachers published scientific research papers fund program papers type overview

Year	National paper (paper)	Provincial paper (paper)	Field paper (paper)
2005	4	8	0
2006	5	4	2
2007	11	7	5
2008	13	11	5
2009	13	12	6

(Data sources: Newspaper of Shanxi province sports news, no.18, 2009)
Correspond to above TABLE 5 data, it makes bar figure, as Figure 5.

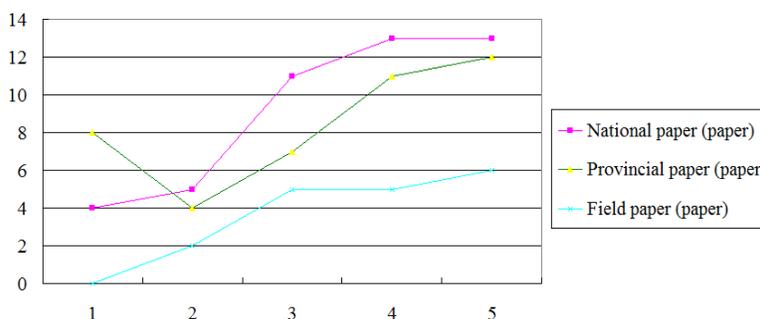


Figure 5 : College sports teachers' scientific research papers published

Based on above, in current physical education academic constantly development, national each province more focuses on physical education academic researches. Presently, in current universities physical education scientific research papers status analysis, they mostly researches on them only from one perspective, so it shows relative single, documents literature and questionnaire survey methods are more used. Bibliometrics application in physical education discipline by far is still not matured, so researchers mostly adopt single indicator research and analysis method, while little adopts multiple-indicator combinative analysis method, most researches are core journals rather than single one province school physical education academic papers. In order to propel to Chinese overall physical education circles academic levels promotion and comprehensive development, we should carry out physical education papers multiple-indicator bibliometric analysis and research on every province universities so as to promote balanced development, as TABLE 6.

TABLE 6 : Institution of higher learning physical education scientific research authors group's job titles structure

Code Number	Level	Quantity	Percentage
1	Senior professional	8	10%
2	Vice professional	20	25%
3	Middle rank	34	42%
4	Primary	18	23%
5	Total	80	100%

Correspond to above TABLE 6 data, it makes black-white bar figure, as Figure 6.

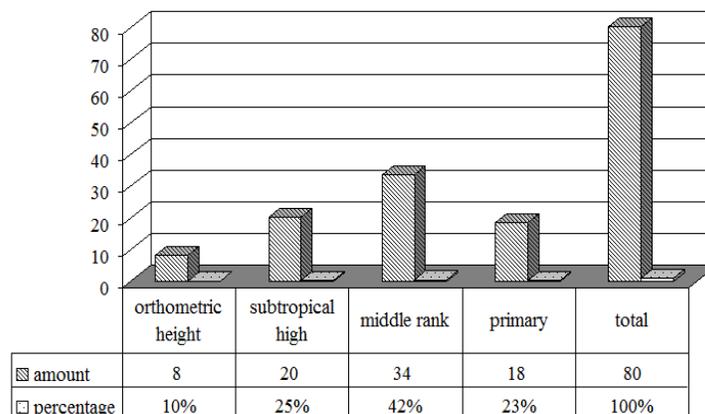


Figure 6 : Colleges and universities sports scientific research thesis title structure of authors

Research result and analysis

Chinese physical education academic development and changes have gone through a series of development and changes, our experts and scholars have made all aspects of investigation and researches, and published relative papers. Current social sciences mainly adopt literature method and investigation method, and sports psychology mainly adopts investigation method and mathematical statistics. By researching and analyzing domestic sports papers literatures, we can get that: sports scholars published papers designing aspects are relative comprehensive, but quoted foreign literatures are little, and quoted language only limits in English, which is to be broken through. In addition, it is citation affiliated disciplines is not reasonable, involved humanity and social science aspects are more. Currently relative influential sports academic periodicals are "Journal of Beijing University of Physical education", "Sports sciences", "China sports science and technology" and so on.

For China future sports academic development orientations, we make following suggestions :

China should increase investment on sports science researches, and more focus on sports academic type development, and should encourage and support some junior colleges to publish more sports scientific research papers, for such people with outstanding contributions, it should increase reward system on sports scientific achievements, and then let them to positive go in for scientific research activities, and propel to national sports to positive and sound develop.

Optimize national sports department books and periodicals information and experiment instruments, and then provide good conditions for broad sports scholars scientific researching, and then whole national sports scientific levels can be promoted.

It should enlarge requirements of sports periodicals scientific research papers normalization extent, such as :Author personal information, applied research methods and citation standard and others, all should try to be unified as requests.

It should strengthen sport circles scholars' cooperative consciousness, help and support them to try to implement cross-discipline exchanging and cooperation, intensify researches on non-sports disciplines knowledge so as to further promote scientific research results quality to provide strength for China sports sustainable development.

It should promote reference and utilization abilities on foreign excellent and latest information and knowledge, bring foreign new achievements and new opinions into China sports scientific research and practical application.

CONCLUSION

Sports science technical work as an important part of China socialism sports, is an indispensable part in China development and progress, and plays important roles in Chinese social development and people's living standards improvement. Since Deng Xiao-Ping proposed "Science and technology are the primary productive forces", sports circles scientific research consciousness are constantly increasing, sports management levels are also constantly promoting, science research techniques works play irreplaceable roles in sport development. And sports scientific papers as scientific research

results and academic research one carrier, it not only reflects a national scientific research ability and academic level, but also propels to a nation comprehensive strength promotion.

Presently Chinese sports academic development is in the rising stage, China should highly focus on it, strengthen investment on sports academic research to provide good environment and conditions for sports scientific researchers better researching, and fully drive their positivity and promote their comprehensive and scientific development. And meanwhile, it also should solve current existing problems, solve academic type researches' narrow coverage range, lacking of fusion with relative disciplines, small visions and other problems, positive learn overseas advanced techniques and experiences to pave the way for sports academic development.

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