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Trends and Developments of Higher Education Research in China: A Content Analysis from 2009-2018

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Abstract

This study attempted to examine the current trends of higher education research in China. The trends were identified by a broad review of eleven Chinese peer-reviewed scholarly journals during the period of 2009-2018. A total of 5536 research articles were reviewed. Content analysis was mainly employed to analyse the current research. Themes were developed, and the content of the articles in the selected journals were coded according to categories derived from earlier studies. The results were interpreted using descriptive analysis (frequencies). The reporting of the results was organized into eight area categories and identified the most commonly used keywords, from which the current research focus was deduced. The findings obtained in this study may be useful in the exploration of potential research areas and identification of neglected areas in the field of higher education.

Keywords

Higher education research, trends study, academic publications, content analysis, China.

1. Introduction

There has been a profound change globally with respect to social changes and scientific developments. Technology has become an extremely important part of our lives and is frequently used in the propagation of information. Thus, there has been a parallel paradigm shift in higher education research. Moreover, online education has become increasingly flexible, open and accessible with the invention of Web technologies that have allowed new pedagogical models to appear. The revolution of the digital knowledge age enables faster and more effective communication and collaboration, which generates fundamentally new forms of higher education [1].

New learning models and an increased number of educational theories are influencing higher education and society as a whole. The 21st century has experienced a paradigm shift of attitudes towards higher education research. Our understanding of the nature of learning is changing, which affects the design, definition, and delivery of education. As a result, paradigm shift in higher education generates new learning domains, new modes of educational delivery, new learning processes, new principles of learning, and new educational roles and entities [2].

Although the range of topics and facets in higher education is broad, they are oriented to respond to social changes and challenges [3]. In this sense, although a major part of higher education research focuses on teaching, learning, and assessment, trends in higher education research and changes are connected at the policy and systemic levels [4]. Moreover, as the demands of learners and educators evolve, it is important to obtain a deeper understanding of trends and issues in higher education and to keep abreast of these changes [5]. On the basis of these ideas, this study intends to exemplify the nexus between the system context of the development in higher education and the characteristics of research studies on higher

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education published in journals, thereby charting the trends and developments of higher education research in China. This study was conducted in direct response to the demand to identify and understand such issues and aims to help researchers identify recent education research trends by studying written scholarly documents.

2. Literature Review

Higher education research is characterized by its blurred differentiation between practitioners and researchers, and thus, it raises tension between professional problem solving and scientific reasoning [6]. This lack of distinction frees higher education researchers from making their theoretical perspectives distinct or becoming involved in the broader fields of theoretical debate. Within this framework, Tight concluded that 'higher education research is not a single community of practice, but rather, a series of, somewhat overlapping, communities of practice[7].

[7] published in English-language journals about higher education outside North America and proposed a list of issues and themes of higher education, which includes the course, the group of students and teachers; the individual, academics and students; the department and the group of academics with students; university or college; the country or nation; the idealized arrangement for higher education; and the international system. Dow also proposed a thematic structure with the following categories: comparative studies and national systems; curriculum; institutional management; students and staff; finance and physical resources; research approaches and contributory studies[8]. There are no clear thematic borderlines of higher education research, and thus, a theme-based research area will be fuzzy to some degree. Higher education research is usually considered a sub-theme of educational research, while some researchers object to such a view. With the growing conception of 'tertiary education' and the expansion of education, the difference between vocational education research and higher education research is becoming more obscure.

Many researchers have examined the field and trends of higher education. With respect to US higher education journals, Silverman analysed 1103 journal articles and classified the main topics in higher education[9]. The characteristics of the research literature, as well as its major contributions on subsequent research and the influence of journals and authors on that field, were also examined by Budd[10]. Similarly, Ross examined the journal Higher Education in terms of its authors' locations, changes in main research topics and citations[11]. Hutchinson and Lovell performed content analyses of articles in higher education journals[12]. Methodologies, themes, levels of analysis, location and other identifiable author characteristics were analysed by Tight[7].

In recent years, research has also been conducted to investigate higher education research trends in China. Survey-based analysis is a common method[13,14]. One of the first studies to investigate trends in education research was carried out by Pan and Wang, who examined research literature in education over a ten-year period from 2000 to 2009 using the CiteSpace software[15]. Their results revealed that pedagogical themes such as design issues, educational reform, and strategies for active learning were the most frequent topics used in the field. Zhu also examined research topics, methods and citation trends in the journal Higher Education Research (Wuhan). A total of 2622 articles e-published in this journal between 1999 and 2012 were selected and were classified into six themes: Comparative higher education research, discipline construction research, education reform and development research, teaching research, college research, and education ideology research. The thematic analysis method was used to explore core meanings. The results of this research yielded six topics: general research topics, specific research topics, research methods, the statistical method used in experimental studies, a citation of the authors, and the cited books and articles/chapters[16].

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3. Research Design

This article explores the evolution and the characteristics of higher education research in China within a special context in which massification, internationalization, and informatization simultaneously drive the development of the universities and the academic community in China. We take the literature of higher education selected from 2009 to 2018 as the research object and analyse the status quo of higher education development in this decade according to the hotspot field and research theme. Due to the sharp increase in the number of journal articles in recent years, the selection of journals is mainly based on the 2018 edition of the "Chinese Core Journals Overview" by Peking University Press (G64 "High-Core Core Journals") and the China Social Science Evaluation Centre of Nanjing University (CSSCI) Source Catalogue of 2017-2018. We consider that journals indexed by both directories are important journals in the field of higher education research, and the articles in these journals are important documents. There are 11 journals that meet the above selection criteria, as shown in Table 1.

Table 1. The selected higher education journals in China

Time	2009-2018
The title of the journals	Higher Education Research (Wuhan) Education Development Research (Shanghai) China Higher Education (Beijing) Degree and Graduate Education (Beijing) China Higher Education Research (Beijing) Jiangsu Higher Education (Nanjing) Higher Engineering Education Research (Wuhan) Modern University Education (Changsha) High Education Exploration(Guangzhou) Chinese University Teaching (Beijing) Fudan Education Forum (Shanghai)

4. Findings and Discussion

4.1 Research Areas

Based on the results of analysing the comprehensive literature and the results of previous studies, we summarize the hotspots of higher education research into 8 categories. As shown in the above figure (Fig. 1), the mainstream areas of higher education in China during 2009-2018 are: Basic Theory of Higher Education, Comparison Higher Education Research, Discipline Construction Research and School Management, Higher Education Reform and Development Research, College Research, Ideological and Political Education, Higher Education Teaching Theory and Methods, and Higher Vocational Education [7,9,16]

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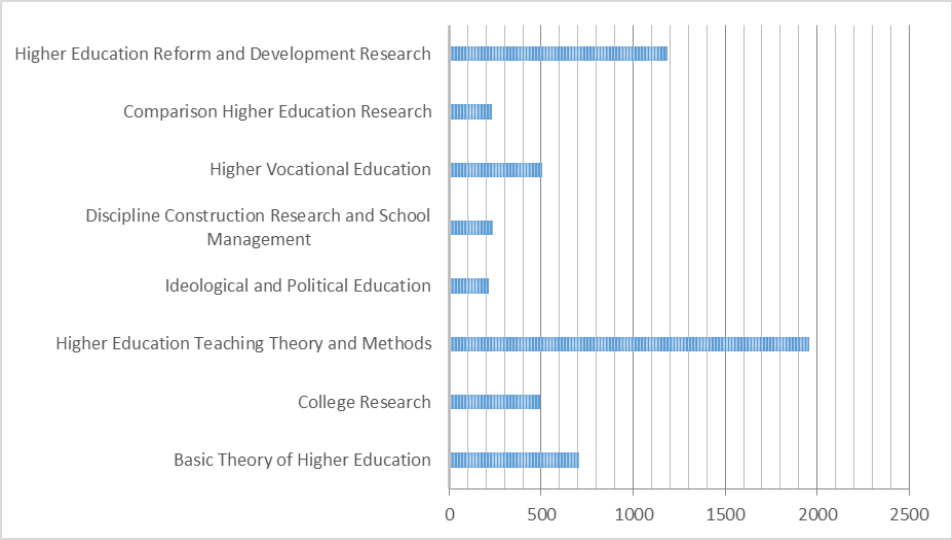

Fig 1. Number of journal papers (2009 - 2018) on higher education in China

The reasons for this phenomenon include the following aspects. First, since the beginning of the 21st century, the substance and spirit of China's education requirement have gradually expanded. The development of Chinese higher education is manifested not only in scale growth but also in the nature of the changes. The main reasons for the growth of scale include the direct promotion of government policies, the demand for social and economic development, and the needs of the people for their own development. Furthermore, the enormous increase in scale means it also has clearly influenced the established higher education system. The influencers, functions, and organizational form of higher education must undergo major changes. China's higher education has achieved rapid development in a relatively short period of time, relying mainly on extensional development methods, including the implementation of "large expansion measures", new construction or upgrades of universities, and increasing the number of disciplines and majors. Thus, at the same time as scale expansion, the overall conditions for operating higher education have also been greatly improved, the structure has been gradually optimized, and quality construction has been steadily advanced. Such advances encourage high-level universities to pay more attention to brand quality. As higher education enters the stage of popularization, the top universities must concentrate more heavily on their brand and quality to improve their competitiveness.

Second, China has continuously strengthened the quality of higher education as there has been scale growth and structural adjustment. Since 2011, the construction of China's higher education quality guarantee system has made new developments. The expansion of higher education and the development of the knowledge economy has led society to reflect on the value of higher education and has prompted universities to pay more attention to leading society. The cooperation between universities and enterprises not only alleviates the difficulties of employment but also reduces the cost of education to a certain extent, improves the quality of education, and creates more learning opportunities. School-enterprise cooperation is actually a shift in the focus of education. Traditional higher education pays attention to credits, mainly based on textbook theory, while the higher education model of school-enterprise cooperation pays more attention to the cultivation of students' skills and practical ability. Universities will transform scientific research achievements and advanced technologies into timely teaching content. Enterprises and institutions will become the practice bases for college students, and school-enterprise cooperation will train a group of outstanding talents that are suitable for the demands of the job market.

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Lastly, modern information technology is profoundly affecting the world, changing people's production methods, lifestyles and learning styles. Education for all people, quality education, personalized learning and lifelong learning have become important features in the development of education in the information age. The construction of higher education informationization in China is happening very rapidly. Digital campuses, virtual education and intelligent campus construction have become strategic tasks of various universities' development plans. The establishment and transformation of infrastructure informationization has been highly valued. The development of teaching resources and the construction of information-based learning environments has been strengthened. Distance education, educational technology, big data applications, and MOOCs (massive open online courses) have all been widely used in colleges and universities. Through the "global motto" of cyberspace, young students from all over the world can acquire educational resources from different countries.

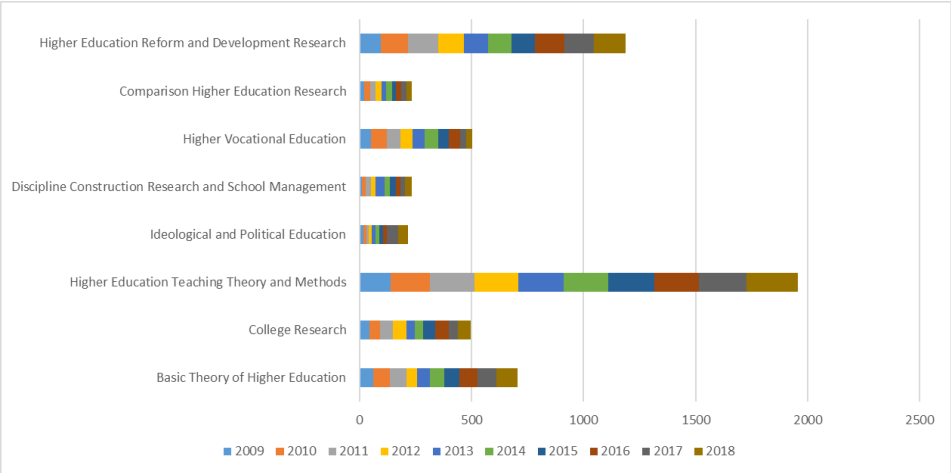

Fig 2. The trend of Chinese higher education research in different topics

From a vertical perspective (Fig. 2), the number of papers in the field of higher education research in China in 2009-2018 is generally stable. The areas in which the number of papers has increased include basic theories of higher education, teaching reform, ideological and political education in colleges and universities, connotative development of colleges and universities, and entrepreneurial innovation education. The number of papers in the field of higher vocational education has fallen slightly, and the number of papers in the field of talent training and modern university systems has not changed significantly.

The number of papers in mainstream research has increased rapidly and has continued to rise. It is likely, then, that these fields will be the main research areas in the next few years. Among them, the change of entrepreneurial innovation education is particularly significant. The upward trend of entrepreneurial innovation education is very slow from 2009-2014, and in some years there is even a downward trend. After 2014, there has been rapid development. The main reason for this phenomenon is that in recent years, the employment pressure of college students has increased, and many graduates are faced with the problem of unemployment after graduation. The jobs provided by society cannot meet the needs of graduates. Thus, many people have entered the entrepreneurial community. However, there is no special study or training for these people. As a result, entrepreneurship education has been put on the agenda, and relevant research on entrepreneurship education has also been enriched. Moreover, this trend is also influenced by policy. In 2015, "Public Entrepreneurship and Innovation" was proposed as an area of focus by the Chinese government, and relevant policies prompted colleges and universities to strengthen innovation and entrepreneurship education. In this

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context, relevant research on innovation and entrepreneurship education has gradually developed.

4.2 Research Focus

Derived from reading the paper titles, abstracts and keywords of all the papers published by journals in 2015-2018, as shown in Table 1, the basic conclusions about the research contents and hotspots of China's higher education are shown in Table 2.

Table 2. Research contents and hotspots of China's higher education research

Area	Research hotspots and paper keywords
Basic Theory of Higher Education	Educational theory system, methodology, education system, theory and practice
College Research	University governance, university system and charters, executive power, university president, academic power
Higher Education Teaching Theory and Methods	MOOCs, SPOC, flipped classrooms, teaching mode, teaching evaluation, practical teaching, instructional design, curriculum setting, sub-discipline teaching method, multiple intelligence theory, constructivism
Ideological and Political Education	Socialist core values, ideological and political education, patriotism education, world outlook, new situation
Discipline Construction Research and School Management	Excellent engineer education training plan, value orientation of curriculum system, modular curriculum architecture, curriculum system integration and restructuring, teaching content reform, educational concept, key discipline construction
Higher Vocational Education	Higher vocational colleges, school-enterprise cooperation, work-study combination, post-training
Comparison Higher Education Research	Postgraduate education, quality of higher education, undergraduate education, world-class universities, international training, North American college model and international comparison
Higher Education Reform and Development Research	Entrepreneurship education, talent cultivation, collaborative innovation, university enrolment expansion, system reform, discipline construction, education management, internationalization of higher education

4.3 Emergent Keywords

Among the research hotspots above, MOOCs and education internationalization are highlighted after 2014. We analysis two topics specifically: MOOCs and Internationalization of Higher Education.

MOOCs

MOOCs is the abbreviation of massive open online courses, which was a concept first put forward by David Cormier in 2008. MOOCs was initially used to refer to CCK08 (online courses named Connectivism and Connective Knowledge), which were offered by Stephen Downes and George Siemens. After 2011, numerous American colleges and universities have directed significant efforts towards the development of MOOCs. With many linked platforms and courses, MOOCs have sparked a mania for online learning across the globe [17].

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In 2013, Chinese colleges and universities also began to take part in the campaign for MOOCs. Thus, that year was called the First Chinese MOOC Year. Beijing University, Tsinghua University, the Hong Kong University of Science and Technology, and the University of Hong Kong, among other Chinese universities, joined edX in May 2013. During July of the same year, Fudan University and Shanghai Jiao Tong University also declared that they had joined Coursera. Thus, in 2015, many researchers in higher education began to study MOOCs, and the frequency has continued to increase thereafter, as shown in Fig 3.

Most people are generally optimistic with respect to the future of MOOCs. Businesses and companies have also found that there are business opportunities hidden within MOOCs. For instance, Chinese Internet businesses such as zhihuishu.com, guokr.com, NETEASE and chaoxing.com have all developed their own MOOC channels or platforms. After 2014, Chinese MOOCs have become more mature, and numerous courses and platforms have been released.

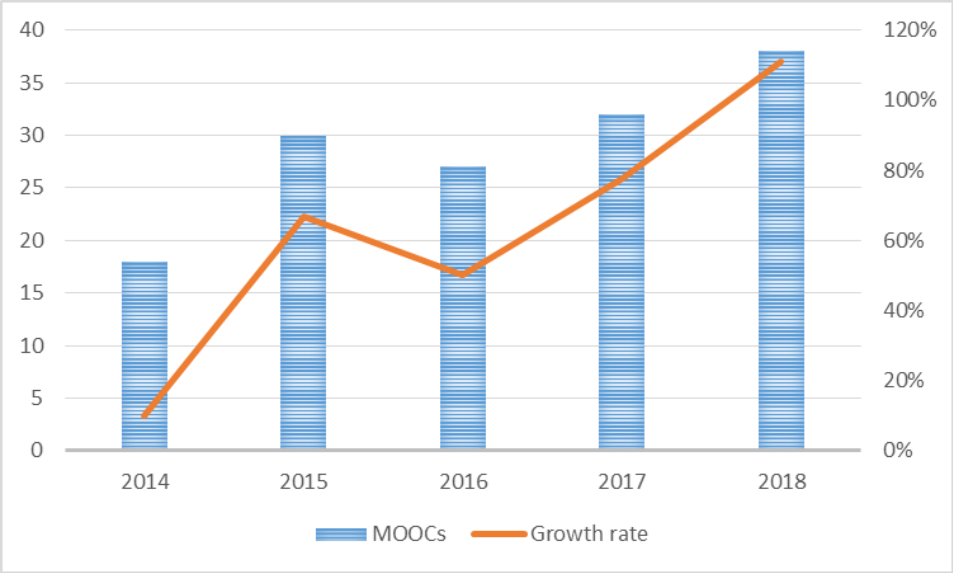

Fig 3. Research trends of MOOCs from 2014-2018

MOOCs exert far-reaching implications on higher education, reshaping teaching objects, teacher-student relationships and the learning environment. Moreover, they also change the teaching models of higher education. Domestic universities are finding ways to explore Chinese-style MOOCs, while they are also learning from foreign experience. In the future, with the development of education informatization, MOOCs will be ever more popular. Thus, the credit system and curriculum construction will inevitably lead to a more heated discussion.

Internationalization of Higher Education

As shown in Fig 4, the number of research studies on the internationalization of higher education has grown rapidly over the last five years. There is an increasing demand for cultural communication within the context of globalization. To help higher education cope with the challenges brought about by globalization, the Chinese government proposed the direction of internationalization for higher education [18]. With respect to the tendency of internationalization there are five main characteristics. First, there is an increasing number of students who study abroad. The students' target countries mostly focus on the USA, Great Britain, Australia, Germany and Japan, and the number of students studying abroad is still growing rapidly. Second, information flows around the world freely at present, and overseas scientists and scholars regularly return to their motherland, carrying knowledge and professional techniques. Thus, teachers and students have rather high mobility. Third, numerous transnational education institutions have emerged, and many universities have

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begun to build branch institutions overseas. Statistics show that the growth in transnational education from Australia, Britain and USA is remarkable. Fourth, international teaching focuses mainly on certain basic subjects, such as information technology, although professional subjects are gradually attracting an increasing number of students from subjects such as the natural sciences and humanities fields.

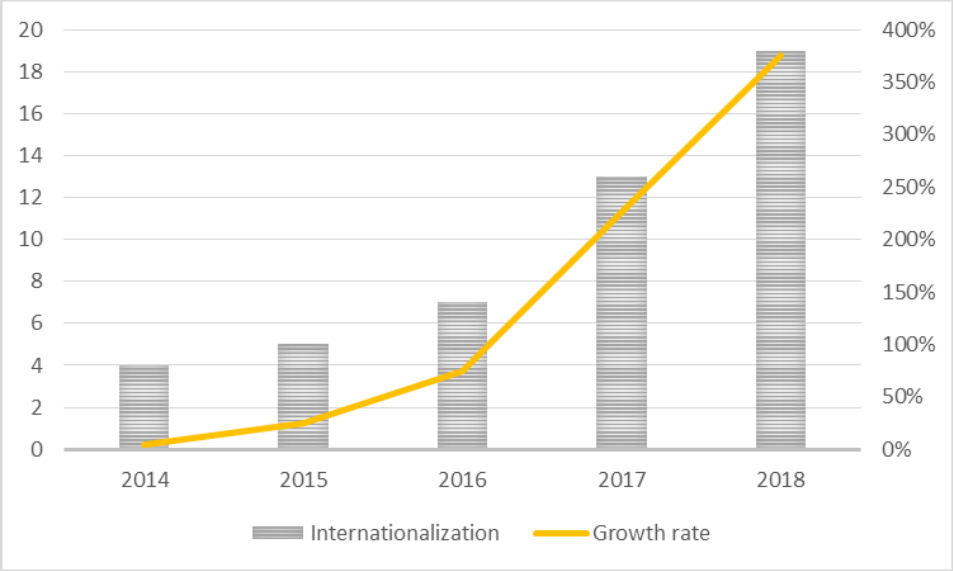

Fig 4. Research trends of Higher Education Internationalization from 2014-2018

Since the 1980s, the internationalization of higher education has gradually moved from the edge of the research field to the centre. A growing number of countries have realized that they are entering into an era of the knowledge economy, that universities must strengthen the internationalization of lecturing, talent mobility, and research, which will help them to make good use of quality international education resources and improve the quality of personnel training and academic research. Furthermore, the question of how China can explore an effective, high-quality and feasible implementation path of higher education internationalization becomes the mission of all theoretical researchers who care about the development of higher education.

5. Discussion and Conclusion

Through the keyword co-occurrence knowledge map and the classification of previous higher education research, we obtain the following hotspots of higher education research from 2009-2018: Basic Theory of Higher Education, Comparison Higher Education Research, Discipline Construction Research and School Management, Higher Education Reform and Development Research, College Research, Ideological and Political Education, Higher Education Teaching Theory and Methods, and Higher Vocational Education. Moreover, in each field we analyse the frequently appearing keywords in recent years in higher education research. The eight hotspot fields range from macroscopic research to microscopic research, representing the focus of higher education researchers in 2009-2018. Among them, the research on the modern university system and innovation and entrepreneurship education is still in a relatively new stage of development. Specifically, the research on MOOCs and the internalization of higher education have seen increasingly heavy focus in recent years. In future research work in higher education, researchers can focus on a more in-depth analysis of these hotspots.

Generally, there are fewer theoretical and academic papers on higher education in China than there are articles on application, experience and general discussion. This difference shows that

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higher education research is still in the stage of introducing and learning from foreign advanced education theories and methods. Such research still lacks the innovation and development of China's actual autonomous academic theory. Nonetheless, research hotspots in higher education are increasingly influenced by information technology, economic integration and the knowledge economy. Specifically, the popularity of MOOCs and the internationalization of higher education is changing the structure of traditional higher education. Researchers should seize the opportunity to develop forward-looking and exploratory theories, methods and technical studies to enrich higher education research.

There are also some shortcomings in the statistical analysis of domestically published papers based on keyword retrieval in this research. For a specific research field, the number of papers in an exact field will appear differently when different keywords are used, and the statistical results will have certain deviations. The keywords used in this paper may have some defects. Moreover, the retrieval of the thesis topic cannot determine whether the paper belongs to the area of theoretical innovation or practical application, and thus, it is not certain whether the research field involved in the paper is in the theoretical development stage or the practice promotion stage.

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