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An Analysis of the Hot Topics and Trends in Research on Innovation and Entrepreneurship Education at Chinese Universities

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ABSTRACT
During the past few years, in keeping with the requirement of development in various aspects of the Chinese economy and society, the innovation and entrepreneurship education in the Chinese universities has become a hot topic of research with respect to scholars at home and abroad. Taking the periodicals included by CNKI in the category of CSSCI as its research scope, this article has gathered the research literature entitled "innovation and entrepreneurship education at universities" during the years 2008 through 2019. With the help of a scientific visualization software called CiteSpace, the article has made a statistic analysis of the issues such as evolution of the innovation and entrepreneurship education, its knowledge exchange and current situation of cooperation from the perspective of bibliometrics before revealing the characteristics of research on Chinese innovation and entrepreneurship education and its law of development and pointing out the research trend concerning the innovation and entrepreneurship education in the universities.

Keywords: *Innovation and entrepreneurship education at universities, Hot research topics, Research trend.*

1. INTRODUCTION

Currently, innovation and entrepreneurship education has risen as China's national strategies. The initiation of innovation and entrepreneurship education in various universities is of great practical significance to the healthy development of higher education, economic progress and social employment.[1] Despite the year-by-year increase in the number of the articles on the issue of the innovation and entrepreneurship at universities with respect to the academic circle and the increasing enhancement in terms of the width and depth of such research, there are not many articles intended for tacking and analyzing the hot topic on innovation and entrepreneurship education. Based upon the strength of CiteSpace as a map of scientific knowledge, this article has made a visualization analysis of the research achievements of the Chinese academic circle on the issue of the innovation and entrepreneurship at universities so as to provide reference for the further research and exploration of such education in the universities.

The research on innovation and entrepreneurship education has, in recent years, become popular. Scholars have made fruitful achievements of research from different perspectives, which are mainly embodied in the following aspects. First, they have made a comprehensive interpretation and analysis of the concept and connotation of innovation and entrepreneurship education. Second, they have succeeded in exploring the construction of the practice patterns of different types and in different forms regarding the innovation and entrepreneurship education at universities from their own environments. Third, as to how to construct a talent cultivation system for the innovation and entrepreneurship education in the universities, they believe that the cultivation of innovative and entrepreneurial talents with respect to universities is a demand not only from the reform of higher education but also from social and economic development. Therefore, a university should establish a clear development orientation and emphasize the construction of an integrated talent cultivation system. Fourth, they have discussed such issues as the need for, and the path of, integration between innovation and entrepreneurship education and specialized education on the one hand and ideological and political education on the other, thinking that the introduction of innovation and entrepreneurship education to specialized education and ideological and political education is an indispensable approach to the cultivation of innovative talents. Additionally, they have

given concrete paths and suggestions in that regard. In other words, the number of the research articles on the issue of innovation and entrepreneurship education at universities is characterized by the increase with each passing year as well as incessant enhancement in terms of scope and depth. In order to explore the characteristics and law of research on the innovation and entrepreneurship education in our country and shed light on the trend of research on innovation and entrepreneurship education at universities, this research, based on the data base of CNKI and taking the articles on innovation and entrepreneurship education at universities from 2008 to 2019 as its research object, has made a statistical analysis in several aspects such as research topic, number, source periodicals and the cooperation between authors and scientific research institutions before uncovering the features and law of research on the innovation and entrepreneurship education in China.

2. DATA SOURCES AND RESEARCH METHOD

The data used in this article come from the CSSCI data base of CNKI and the research and analysis are conducted by adopting CiteSpace, a visualization information software product developed by Chen Meichao, who is a professor from Drexel University and specialize in computer and information science.

2.1. Data Sources

The data of the articles gathered in this research mainly come from the CSSCI advanced search in CNKI. Through different search terms, an analysis of the obtained search results has been made. Finally, "innovation and entrepreneurship education" is finalized as the search term with the field limited to "topic" and unlimited search time. Based upon the aforementioned search condition, a total of 825 related articles were searched. After a further sifting, with the exception of non-biographical materials, reports, commentaries and related but invalid published articles, 810 articles were ultimately used as the object of analysis.

2.2. Research Method

In this article, a visualization software called CiteSpace developed by Prof. Chaomei Chen who comes from Drexel University and specializes in computer and information science is used to conduct research and analysis. CiteSpace is the abbreviation of Citation Space. Dedicated to the analysis of the potential knowledge in scientific literature, CiteSpace is a multivariate, time-sharing and dynamic visualization citation analysis software which has been gradually developed in the context of scientific metrology and visualization of data and information. Due to the structure, law and distribution of scientific knowledge presented through visualization method, the visualization graphics analyzed and obtained through this method are also called "map of scientific knowledge"[3].

3. RESEARCH FINDINGS

3.1. Bibliometric Analysis

An important index for measuring the development of a field is the change in terms of the number of academic articles. Making a historical and comprehensive statistical analysis of the literature distribution and drawing the corresponding distribution curve are of great significance to the evaluation of the stage of the field and prediction of its developmental trend and dynamic state [4]. The research on innovation and entrepreneurship education at universities with respect to the academic circle in China began to emerge in 2008. Judging from Figure 1, the number of published articles follows the tendency of increase on the whole. Generally speaking, with 2014 as a boundary, the research on innovation and entrepreneurship education at universities with respect to the academic circle in China can be divided into two stages. The first stage is the period ranging from 2008 to 2014 when the number of the published article in that regard is about 20, which can be said to be the initial stage as far as innovation and entrepreneurship education at universities is concerned. The second stage is the period ranging from 2014 to this day when the number of the published article in that regard is characterized by an exponential growth with the year of 2015 being the most remarkable and the percentage of increase reaching as high as 251.72%. During this stage, articles of this kind are characterized by an increase in number and abundance in content. It is predicted that in the upcoming years, the amount of the articles on innovation and entrepreneurship education at universities will take on a tendency of growth.

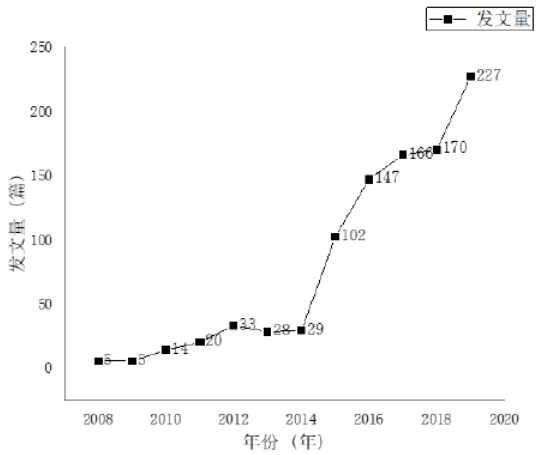

Figure 1 Annual distribution of the articles about the research on innovation and entrepreneurship education at universities

3.2. Distribution of Source Periodicals

In this article, the periodicals with the number of published articles about the research on innovation and entrepreneurship education at universities reaching five or more are selected for analysis (see Table 1). It can be found that *China Higher Education Research* by the China Association of Higher Education, *China Higher Education* by the China Education Press Agency and *Modern Education Management* by the Liaoning Academy of Education have the largest number of published articles about the education. Each of the three periodicals has 10 articles of this kind. In the second place are the periodicals such as *Research in Higher Education of Engineering*, *Heilongjiang Researches on Higher Education*, *Jiangsu Higher Education* and *China University Teaching*, with each of them having 9 articles in that regard. In the third place are periodicals including *Ideological Theoretical Education* and *Research in Education Development*. It can be seen that the source periodicals about the education of innovation and entrepreneurship come from Beijing and Central China. And the data above indicate that the objects of the innovation and entrepreneurship education at universities are mainly distributed in North China.

Table 1. Table of the periodicals with the number of published articles about the education of innovation and entrepreneurship at universities in China reaching five or more

Serial number	names of periodicals	Number of published articles
1	China Higher Education Research	10
2	China Higher Education	10
3	Modern Education Management	10
4	Research in Higher Education of Engineering	9
5	Heilongjiang Researches on Higher Education	9
6	Jiangsu Higher Education	9
7	China University Teaching	9
8	Ideological Theoretical Education	8
9	Research in Education Development	8
10	Journal of National Academy of Education Administration	8
11	Higher Education Exploration	7
12	Journal of Higher Education Management	7
13	Educational Research	7
14	China Youth Study	6
15	Chinese University Science and Technology	6
16	Studies in Ideological Education	6
17	Science and Technology Management Research	6
18	Theory and Practice of Education	5
19	Leading Journal of Ideological and Theoretical Education	5

3.3. Scientific Co-authorships

According to the definition given by Katz J. S and Martin B R, experts specializing in scientific metrology, for scientific collaboration, it means that researchers work together for the common purpose of producing new scientific knowledge. However, in a real process, scientific collaboration is manifested in various forms. The scientific collaboration mentioned here refers to the case in which different authors, institutions, countries and areas simultaneously appear in the same article. In this case, we think that there is a collaboration relationship between them [3]. Influenced by the objective factors, for example, the data of collected literature, this article is intended for discussing the scientific collaboration with respect to the academic circle in China in the research on innovation and entrepreneurship education at universities.

In Figure 2, a small or large dot in size represents a small or large number of the articles published by an author. Judging from Figure 2, the mode of research on the issue of innovation and entrepreneurship education at universities with respect to Chinese scholars is mainly characterized by individual research with collaborative research accounting for a small proportion. The collaborative research is mainly characterized by the research jointly done by two scholars with the research jointly done by three or more scholars accounting for a small proportion. In this figure, the big or small dot in size stands for the big or small number of published articles while the line represents the collaborative relationship between two authors. According to this figure, there are 10 scholars whose numbers of published articles reach 4 or more. Obviously, most of these scholars are the top scholars in the field of research on innovation and entrepreneurship education at universities.

Figure 2 Analytical graph about the network of the collaboration between authors

Table 2. Prolific authors in the research on innovation and entrepreneurship education at Chinese universities

Count	Year	Authors
17	2015	Wang Zhanren
14	2012	Huang Zhaoxin
7	2017	Yan Maoxin
6	2017	Xu Xiaozhou
4	2013	Fang Wei
4	2016	Mi Yinjun
4	2016	Hao Jie
4	2016	Wu Aihua
4	2018	Zhu Jiade
4	2013	Zhou Yong

3.4. Scientific Collaboration between Research Institutions

Judging from Figure 3, as far as the field of research on innovation and entrepreneurship education at universities is concerned, the Chinese research institutions have a better collaboration than authors. In the research on the issue of innovation and entrepreneurship education, the mode of scientific collaboration with respect to institutions is mainly manifested by separate research assisted by collaborative research. Additionally, collaborative research is characterized by a strong concentration. In this figure, a small or large dot in size represents a small or large number of the articles published by an institution while the line stands for a collaborative relationship. Generally speaking, the collaboration and exchange between scientific research institutions are to be strengthened.

Figure 3 Analytical graph about the network of the collaborations between Chinese institutions

Of the numerous research institutions, the School of Innovation and Entrepreneurship under Wenzhou Medical University is an institution with the most concentrated scientific collaboration network, which has conducted scientific collaborations with four scientific research institutions including the School of Continuing Education under Renmin University of China and the School of Marxism under Wenzhou University. If the scientific research networks derived from the four aforementioned scientific research institutions are incorporated therein, the research network with the School of Innovation and Entrepreneurship under Wenzhou Medical University at its core is the most complicated scientific collaboration network in the field of research on innovation and entrepreneurship education at universities (see Figure 4).

Figure 4 The scientific research collaboration network of the School of Innovation and Entrepreneurship, Wenzhou Medical University, China

In Figure 5, a small or big dot in size represents a small or big number of published articles. The Research Center for Ideological and Political Education of Northeast Normal University has the largest number of published articles. However, its scientific research collaboration network is somewhat simple. It has conducted the scientific research collaboration on the issue of innovation and entrepreneurship education at universities only with the Office of Student Affairs under Northeast Normal University.

Figure 5 Scientific collaboration network of Research Center for Ideological and Political Education, Northeast Normal University, China

Table 3 shows the number of published articles of Chinese institutions on the issue of innovation and entrepreneurship education at universities. Of them, 11 institutions have the number of 4 or more published articles, which is in accordance with the number of

authors with the number of published articles reaching 4 or more.

Table 3. Prolific Chinese research institutions engaged in the research on innovation and entrepreneurship education at universities

Count	Centrality	Year	Institutions
14	0	2015	Research Center for Ideological and Political Education, Northeast Normal University
10	0.01	2016	School of Innovation and Entrepreneurship, Wenzhou Medical University
8	0	2016	College of Education, Zhejiang University
8	0	2011	College of Entrepreneurship, Wenzhou University
7	0	2017	Northeast Normal University
6	0	2016	Beijing Union University
6	0	2017	Institute of Higher Education, Wenzhou University
5	0	2015	Huanghuai University
5	0	2018	School of Education Science, Guizhou Normal University
4	0	2018	College of Law and Politics, Wenzhou University
4	0	2016	Graduate School of Education, Dalian University of Technology

4. ANALYSIS OF HOT RESEARCH TOPICS AND TREND

4.1. The Thread of Research on Innovation and Entrepreneurship Education at Chinese Universities

Through the distribution of keywords in the time-zone chart, the article is dedicated to determining the thread of research on innovation and entrepreneurship education at universities. The years in the distribution in the shape of round are those that appeared for the first time. In the later research, the dots represented by the keywords will be enlarged if the words are applied to the research as keywords. In Figure 6, innovation and entrepreneurship education, entrepreneurship education and universities are three keywords that appeared for the first time in the field of research on innovation and entrepreneurship education at universities in 2008. In the subsequent research, terms such as entrepreneurial ability, professional education, curriculum system and ecosystem are consecutively used in the research. In recent years, terms embodying the characteristics of the time such as mass entrepreneurship and innovation education, system of innovation and entrepreneurship education, construction of ecosystem, innovation-driven, maker space of universities and entrepreneurial culture have been gradually applied to research on innovation and entrepreneurship education at universities. This research is characterized by the extension from the initial research on topics such as innovation and entrepreneurship education and entrepreneurial education to the issues at the realistic level such as the attention paid to the improvement of entrepreneurial ability and the construction of curriculum system. And the keywords that have appeared in the past few years further indicate that the research on the field of innovation and entrepreneurship at universities with respect to the academic circle in our country has become deeper and been of more realistic significance.

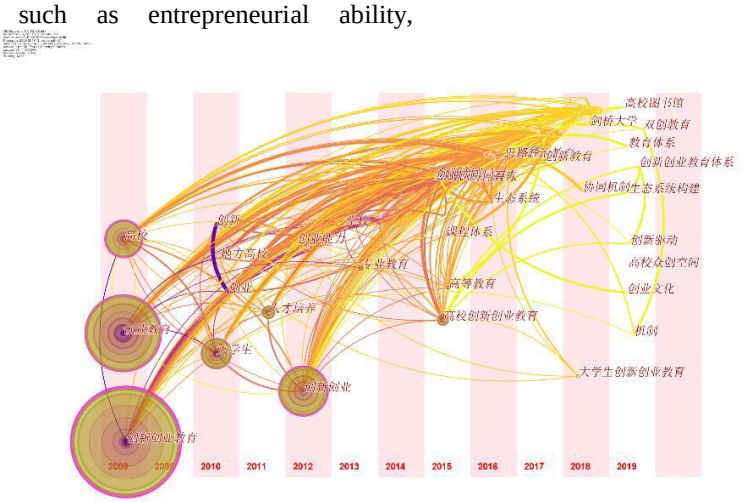

Figure 6 Time zone chart of new words concerning the research on innovation and entrepreneurship education at Chinese universities

4.2. Analysis of the Hot Topics about the Research on Innovation and Entrepreneurship Education at Chinese Universities

Keywords are the core–the quintessence--of an article. They are the high generalization and condensation of an author's view. Therefore, it is necessary to make an analysis of the keywords of an article. Often, keywords will be employed to clinch readership status by relating to the hot topics in a given field of research. [5]Based on the co-occurrence network (see Figure 7) of the keywords about the research on innovation and entrepreneurship education at universities, this article takes the table of the frequency of keywords (see Table 5) as an important basis and the distribution chart of the historical frequencies at key nodes as well as the table of the information of published literature as the main analysis object so as to clarify the hot research topic about innovation and entrepreneurship education at universities.

From Table 4, it is clear that the keyword with the highest frequency is "innovation and entrepreneurship education," which is consistent with our search. The keyword with the second highest frequency is "entrepreneurship education," which has an occurrence rate of 192 and centrality of 0.36, indicating that there is a close relationship between "entrepreneurship education" and "innovation and entrepreneurship education at universities." The main intention for universities to carry out innovation and entrepreneurship education is to promote entrepreneurship education. Other keywords with the frequency number surpassing 10 include "innovation and entrepreneurship," "universities," "university students," "talent cultivation," "innovation and entrepreneurship education at universities," "professional education," "higher education," "local universities," "entrepreneurship education at universities," "entrepreneurship," "ecosystem," "innovative and entrepreneurial talents," "innovation of entrepreneurial ability," "ideological and political education," "university students' entrepreneurship," "collaborative innovation," "innovation and entrepreneurship education for university students," "entrepreneurial practice," "path" and "mode." (Please refer to Table 4.) The keywords listed above include many more words about education than words related to innovation and entrepreneurship education. In 2016, as a keyword, "ideological and political education" appeared in this research field, indicating that innovation and entrepreneurship education at the university level is not limited to the cultivation of students' innovative and entrepreneurial ability and the enhancement of their awareness regarding innovation. Additionally, it has incorporated education's educational function and value guidance into the system of cultivation through teaching. From the color depth of the annual ring of each and every word, it can be found that they will, in the near future, significantly influence innovation and entrepreneurship education at universities.

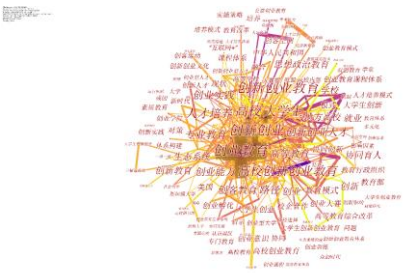

Figure 7 Co-occurrence network of the key words about the research on innovation and entrepreneurship education at Chinese universities

Table 4. Analytical graph about co-occurrence network of the key words about the research on innovation and entrepreneurship education at Chinese universities

实施策略	Implementation strategy	创新驱动	Innovation-driven
培养模式	Cultivation mode	大学生创业教育	University students' entrepreneurship education
教育改革	Educational reform	教育部	Ministry of Education
研究综述	Research overview	教育行政组织	educational administrative organization
人才培养体系	Talent cultivation system	协同育人	Educate students in a synergistic manner
"互联网+"	Internet plus	影响因素培养体系	Cultivation system of influence factors
课程体系	Curriculum system	众创空间	Space of crowd innovation
创新创业型人才	Innovation and entrepreneurship-oriented talents	多元化	Diversification
高等学校	Institutions of higher learning	就业	Employment
		教育体系	System of education
创客运动	Maker movement	大学生创新	Innovation made by university students
创新创业文化	Innovation and entrepreneurship culture	人才培养模式	Mode of talent cultivation
现状	Current situation	机制	Mechanism
困境	predicament	创业教育课程体系	System of the courses of entrepreneurship education
创业型人才	Entrepreneurial talents	双创教育	Education of mass entrepreneurship and

			innovation
创新人才	Innovative talents	学堂	School
大学	Universities		
成因	Cause	虚拟技术	Virtual technology
新时代	New era	创业教育模式	Mode of entrepreneurship education
		体验式教学	Experiential teaching
素质教育	All-round education	论点	Argument
创业学院	Entrepreneurship academy	经济新常态	New normal of economy
		人才红利	talent dividend
创新实践	Innovative practice		
对策	Countermeasures	学术权力	Academic power
大学生创新创业	University students-oriented innovation and entrepreneurship	互联网+	Internet plus
体系构建	System construction		
一带一路	The Belt and Road Initiative	供给国	Supply countries
		创客空间	Space of makers
创新型人才	Innovative talents	中华人民共和国	The People's Republic of China
社会创业	Social entrepreneurship	思想政治教育	Ideological and political education
斯坦福大学	Stanford University	高校内容	Contents concerning universities
策略	Strategy	欧盟	The European Union
		大数据	Big data
高校图书馆	University library	公益创业教育培养创新创业教育	Social entrepreneurship education cultivates innovation and entrepreneurship education
创业教育生态系统	Ecosystem of entrepreneurship education	创业实践	Entrepreneurial practice
剑桥大学	University of Cambridge	人才培养	Talent cultivation
美国高校	American universities	高校大学生	University students
协同发展	Synergistic development	专业教育	Professional education
认识误区	misunderstanding	创新创业	Innovation and entrepreneurship
专门教育	Specialized education	创业教育	Entrepreneurship education
		生态系统	Ecosystem
高校教育	University education	创新教育	Innovation education
创业意识	Entrepreneurial consciousness	创业能力	Entrepreneurial ability
		高校创新创业教育	Innovation and entrepreneurship education at universities
启示	Inspiration	创客教育	Education of makers
创业型大学	Entrepreneurial universities	创业孵化	Business incubation
路径选择	Path choice	大学生创业	University students' entrepreneurship
	Practice	路径	Path
大学生创新创业教育问题	Issue on university students' innovation and entrepreneurship education	校企合作	University-enterprise cooperation
协同	Synergy	创业	Entrepreneurship
高校创业教育	Entrepreneurship education at universities	校企合作	University-enterprise cooperation
创业课程	Entrepreneurship courses	创业大赛	Entrepreneurial contest
创业教育体系	System of entrepreneurship education	教育模式	Educational pattern
生态系统构建	Construction of ecosystem	高等教育	Higher education
创业训练	Entrepreneurial training	特征	Characteristics
众创时代	Era of crowd innovation	协同创新	Synergistic innovation
创新创业教育体系	System of innovation and entrepreneurship education	协同育人	Educating students in a synergistic manner
高等教育综合改革	Comprehensive reform of higher education	创新创业人才	Innovation and entrepreneurship-oriented talents

Table 5. Table of the frequencies of the key words about the research on innovation and entrepreneurship education at Chinese universities

Count	Centrality	Year	Keywords
260	0.44	2008	Innovation and entrepreneurship education
192	0.36	2008	Entrepreneurship education
121	0.39	2012	Innovation and entrepreneurship
98	0.25	2008	higher learning institutions
82	0.18	2010	University students
38	0.14	2011	Talent cultivation
38	0.2	2015	Innovation and entrepreneurship education in universities
20	0.06	2013	Professional education
19	0.04	2015	Higher education
19	0.03	2010	Local universities
18	0.01	2011	Entrepreneurship education at universities
18	0.03	2010	Entrepreneurship
15	0.07	2016	Eco-system
14	0.07	2015	Innovative and entrepreneurial talents
14	0.08	2012	Entrepreneurial ability
13	0.03	2010	innovation
13	0.02	2016	Ideological and political education
12	0.04	2016	university students' entrepreneurship
12	0.03	2013	Synergistic innovation
12	0.01	2018	Innovation and entrepreneurship education for university students
11	0.05	2015	Entrepreneurial practice
11	0.04	2016	path
10	0.01	2014	mode

4.3. Distribution of the Topics of the Research on Innovation and Entrepreneurship Education at Chinese Universities

CiteSpace cluster analysis of keywords can intuitively reflect the topical distribution, topic issues and hot issues of the research in a field. This research makes a cluster analysis of keywords before deriving seven topical distributions in the field of innovation and entrepreneurship education at universities, including "innovation and entrepreneurship education at universities," "integration," "entrepreneurship," "talent cultivation," "countermeasures," "schools" and "businesses started by university students" (see Figure 8).

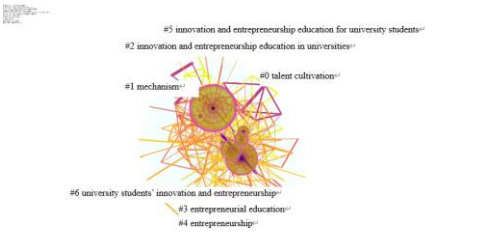

Figure 8 Chart of cluster analysis of new words

The integration in cluster 0 includes keywords such as "innovation and entrepreneurship education at universities," "innovative and entrepreneurial ability," "entrepreneurial practice," "maker education," "entrepreneurship contests" and "entrepreneurial incubation." This topical research is concentrated on the form and process of innovation and entrepreneurship education at universities.

The integration within cluster 1 includes keywords such as "innovation and entrepreneurship education," "professional education," "ideological and political education," "curriculum system" and "collaborative development." The topical research reflects the integration with various disciplines in the current development of innovation and entrepreneurship education in our country. The integration is characterized by not only the incorporation of professional courses but also the introduction of ideological and political education, thus enriching the research system of innovation and entrepreneurship education at universities.

The entrepreneurship in cluster 2 includes keywords such as "innovation and entrepreneurship," "path," "higher education innovation" and "entrepreneurship." This topical research focuses on the path and methods of entrepreneurship

The talent cultivation of cluster 3 includes keywords such as "institutions of higher learning," "university students," "employment," "innovation-oriented talents," "innovation academies" and "United States." The research under this topic mainly focuses on the content concerning the main body, objects and objectives of talent cultivation.

The countermeasures in cluster 4 include keywords such as "entrepreneurship education," "ecosystem," "innovation education" and "Chinese experience." The

research of countermeasures mainly focuses on the exploration of innovation and entrepreneurship education experience with Chinese characteristics.

The schools in cluster 5 include keywords such as "local colleges and universities," "education of students in a synergistic manner," "synergistic innovation," "influencing factors," and "scientific and technological innovation." Under this topic, the research mainly focuses on content such as the supply side of innovation and entrepreneurship education as well as its influence and effect.

University students' entrepreneurship in clustering 6 includes four keywords such as misunderstandings, strategies, new normal and synergistic mechanism.Due to the small number of nodes, it is difficult to fully understand the specific content of research, which at the same time shows that the relevant literature is relatively meagre. However, as the important content of innovation and entrepreneurship education at universities, university students' entrepreneurship is somewhat reflective of the current situation characterized by the severe shortage of research on university students' entrepreneurship innovation and entrepreneurship at institutions of higher learning.

Table 6. Details of the cluster analysis of keywords

Cluster ID	Size	Silhouette	mean(Year)
0	27	0.616	2015
1	25	0.624	2015
2	23	0.774	2015
3	23	0.782	2016
4	14	0.686	2015
5	12	0.859	2014
6	10	0.879	2016

4.4. Analysis of the Trend of Research on Innovation and Entrepreneurship Education at Chinese Universities

Emergent words refer to the words that appear repeatedly or are used frequently within a short period of time. The change in the frequency of emergent words can be used to judge the frontiers and trend of the research in that regard. In this research, 19 emergent words are classified into three stages before making interpretations of the frontier research issues in different stages as well as the research trend in the current stage (see Figure 9):

Stage 1: In this stage, which covers the period of 2008 to 2015, the keyword "entrepreneurship education" was used the longest. Moreover, keywords such as "entrepreneurship," "local universities," "entrepreneurship education at universities," "entrepreneurial ability," "Ministry of Education," "educational administrative organizations" and "school" were applied to research on innovation and entrepreneurship education at universities and thus became the frontier issues of research at this stage.

Stage 2: In this stage, which covers the period of 2015 to 2017, emergent keywords included "culture of innovation and entrepreneurship," "innovation," "maker education," "employment," "curricular system of entrepreneurial universities" and "countermeasures." The frontier issues at this stage mainly focused on the content, forms, main body and purposes of innovation and entrepreneurship education at universities.

Stage 3: This stage extends from 2017 to the present. Currently, the research frontiers in the field of innovation and entrepreneurship education at universities focus on innovation education,"Internet plus" and entrepreneurship academies. All the three emergent words give expression to a certain era characteristics and conform to the demand of the development of the times.

Top 19 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2008-2019
Entrepreneurship education	2008	15.5329	**2008**	2014	
Entrepreneurship	2008	4.5657	**2010**	2014	
Local universities	2008	2.1069	**2010**	2011	
Entrepreneurship education in universities	2008	2.3543	**2011**	2015	
Entrepreneurial ability	2008	2.1115	**2012**	2014	
Ministry of Education	2008	2.5193	**2013**	2015	
Educational administrative organizations	2008	2.9318	**2013**	2015	
School	2008	2.5193	**2013**	2015	
Culture of innovation and entrepreneurship	2008	1.4665	**2015**	2016	
Innovation	2008	1.2965	**2015**	2016	
Maker education	2008	1.3356	**2015**	2017	
Employment	2008	2.5739	**2015**	2016	
Entrepreneurial universities	2008	1.8349	**2015**	2016	
Curriculum system	2008	1.5469	**2015**	2016	
Entrepreneurial consciousness	2008	1.4404	**2016**	2017	
Counter-measure	2008	1.4404	**2016**	2017	
Innovation education	2008	2.418	**2017**	2019	
“Internet plus”	2008	1.6074	**2017**	2019	
Academies of entrepreneurship	2008	1.3382	**2017**	2019	

Figure 9 The top 19 emergent words

5. CONCLUSION

By taking the sample with the topic of "innovation and entrepreneurship education at universities" collected by CNKI from 2008 to 2019, this article, with the help of a scientific visualization software called CiteSpace and working from the perspective of bibliometrics, has conducted the exploration of issues such as the evolution, the status of knowledge exchange and cooperation, research topics and research frontiers about the research on innovation and entrepreneurship education at universities before drawing the following conclusions:

a) The quantity of the literature in the field of research on innovation and entrepreneurship at universities is on the increase. The rate of increase has been significant since 2014, and it is expected to remain a hot issue of research.

b) The distribution of authors and institutions engaged in the field of research on innovation and entrepreneurship at universities is relatively dispersed, and the scientific collaboration is to be further enhanced.

c) The hot issues of research on innovation and entrepreneurship education at universities mainly focus on innovation and entrepreneurship education perse, university students, the cultivation of innovation-oriented talents and the role that a university should play in this process.

d) The keyword "ideological and political education" appears in both the distribution of hot topics and topics. In terms of hot research topics, it was in 2016 that "ideological and political education" was applied to research on innovation and entrepreneurship education at universities for the first time. As of this writing, it has been applied 13 times. In the distribution of topics, this phrase is also included in the integration of cluster 1. The introduction of "ideological and political education" to the research on innovation and entrepreneurship education at universities indicates a qualitative leap in the knowledge of problems with respect to this research field. Scholars certainly pay attention to innovation and entrepreneurship education perse and various subjects elicited by it, but they have also found the deep-seated educational function and value orientation of various kinds of education at universities behind this particular mode of education.

e) Innovation education, "Internet plus" and entrepreneurship academy constitute the frontier issues in the field of innovation and entrepreneurship education at Chinese universities. Of them, innovation education is elicited from traditional entrepreneurship education. In fact, entrepreneurship education is the training of basic skills and impartation of knowledge targeted at students with entrepreneurship as the orientation. However, innovation education constitutes the deepening and improvement of entrepreneurship education. In other words, this education is intended for not only teaching students basic skills but also consciously cultivating their innovative thinking and ability. Moreover, "Internet plus" is a hot issue in the current social environment. It is a challenging field with respect to innovation and entrepreneurship with respect to university students.

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