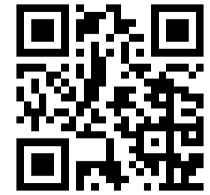


Education Research in the Context of the COVID-19 Pandemic: Top Priorities, Comparisons Inside and Outside China, and Future Trends



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ABSTRACT: This research uses the knowledge mapping tool CiteSpace to categorize the publications about education and teaching inside and outside China during the COVID-19 epidemic condition, and to conduct a quantitative analysis of 370 papers in the Web of Science database and 325 papers in the core journals of CNKI. Keyword co-occurrence and cluster comparison are used to examine the epicenters of activity and the directions education and training are taking amid the COVID-19 pandemic. This study examines similarities and contrasts between Chinese and international research priorities in the field of education in the context of the current COVID-19 pandemic.

KEYWORDS: Education Research, the COVID-19 Pandemic, Top Priorities, Comparisons Inside and Outside China, Future Trends

1. INTRODUCTION

The sudden global spread of the COVID-19 pandemic at the end of 2019 and the beginning of 2020 had far-reaching consequences. Changes have been made to a degree in international schooling. While both online and offline methods were employed in other countries, in China the initial response to the pandemic was to cancel school.

Before the pandemic, people had begun using the internet for educational purposes. Online education has been on everyone's agenda ever since IT was introduced into the classroom. The development of distance learning has been hastened by the pandemic. Equally important in both traditional classroom settings and the virtual learning environment is the use of well-crafted instructional materials to direct students' minds and behavior. Multimedia and network technology are the means by which online education is delivered. By utilizing the web, educational institutions and their students are able to engage for the goal of educating their students. As online education has progressed, it has both alleviated issues with traditional classroom instruction and shed light on new challenges that have arisen as a result of its widespread adoption.

Due to the rapid and widespread growth of the COVID-19 epidemic, the majority of teaching efforts are now focused on providing instruction through online means. Researching online education and finding solutions to the many issues that arise from it are crucial to ensuring the continued development of education and teaching.

2. RESEARCH TOOLS AND DATA SOURCES

2.1. Research tools

In this study, CiteSpace software, a visual scientific knowledge map developed by Professor Chen Chaomei of Dressayre University,

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USA, is used as the research tool. CiteSpace is a software that identifies and presents hot keywords, research progress and frontiers in a certain field by visual means. CiteSpace software is widely used in research review because it can make quantitative analysis of literature collections in specific fields, and form an intuitive knowledge map, truly reflect research trends and analyze research frontiers (Zheng Yuqing, Liu Chujia, 2021).

2.2. Data sources

These study data were extracted from the CNKI and WOS full-text databases. To assure the exhaustiveness and dependability of the original data, CNKI utilizes advanced retrieval, and the retrieval condition is periodic retrieval. The timeframe is from 2020 to 2022, and the topic is COVID-19 pandemic education. The source categories consist of articles from core journals Certified by the Chinese government. 325 Chinese literary works were retrieved in advance. Select advanced search in WOS, set the search condition as paper search, the theme is Education under COVID-19, the time span is from 2020 to 2022, the source category is selected as the Web of Science core journal, the research direction is education and teaching research, and preliminary searches have been conducted on 370 Chinese literatures.

2.3. Comparison of Chinese and international publications

In the three years since the outbreak of the COVID-19 epidemic, the number of research papers on education under the COVID-19 epidemic in the world has been increasing. From the figure below, we can observe that the research on COVID-19 epidemic in China has a stage change with the outbreak, climax and end of COVID-19 epidemic. The international research on COVID-19 epidemic is less and less every year as shown in Figure 1.

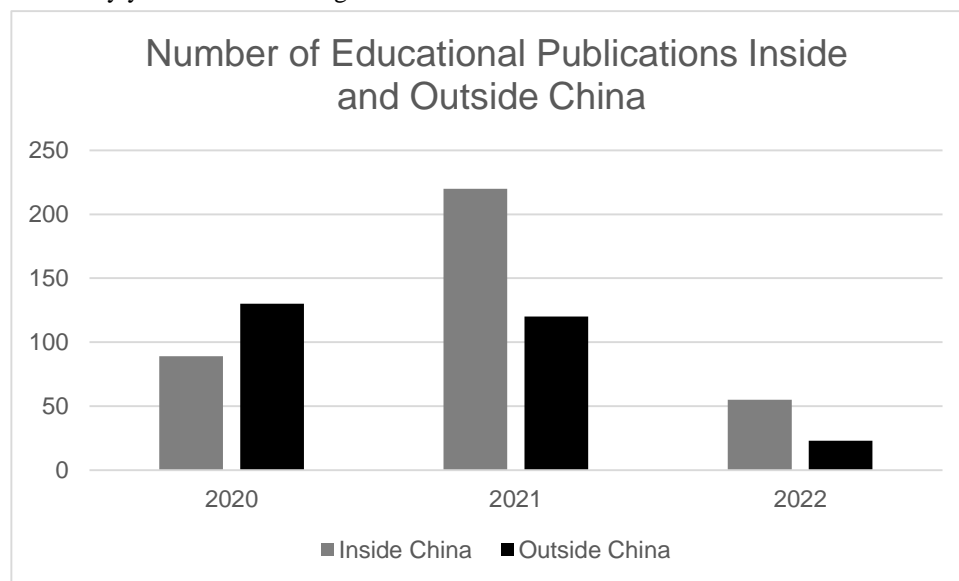


Figure 1: The number of educational publications in light of the COVID-19 epidemic inside and outside China (2020.03—2022.05)

3. ANALYSIS OF THE RESEARCH HOT-TOPIC AGENDA

3.1. Priorities in the Context of the Outbreak of COVID-19 in China

Utilizing CiteSpace 5.5.R2 evaluates the research hotspots based on keyword frequency, centrality, and other characteristics, and creates a keyword collinear map. By sorting the frequency of the words, the top 20 keywords that best characterize the network in China are identified (as shown in Figure 2). In this article, eight frequently occurring terms are analyzed, including 3 online education, 5 online education, 6 college students, 7 online learning, 8 mental health, 9 health education, 13 education equity, and 14 higher education. These eight high-frequency terms are grouped into two groups in this article. The first category selected for study is online education (containing the keywords 3,5,7,13, and 14), and 47 core journals are chosen for examination. Eleven essential journals are chosen for study from the second category, mental health education (containing keywords 6,8, and 9). All of the above data can be found in Table1 below..

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Table 1: Top 20 Educational high-frequency words under COVID-19 epidemic in China.

serial number	keyword	central	frequency	time
1	COVID-19 epidemic situation	0.42	133	2020
2	COVID-19	0.09	30	2020
3	online education	0.04	14	2020
4	epidemic prevention and control	0.04	14	2020
5	Online teaching	0.03	11	2020
6	college student	0.03	10	2020
7	online learning	0.03	9	2020
8	mental health	0.02	7	2020
9	health education	0.02	7	2020
10	Life education	0.02	6	2020
11	epidemic	0.02	6	2020
12	Risk cognition	0.02	6	2020
13	Educational equity	0.02	6	2020
14	higher education	0.02	5	2020
15	Chinese economy	0.02	5	2020
16	Digital economy	0.01	4	2020
17	artificial intelligence	0.01	4	2020
18	Sports industry	0.01	4	2020
19	Risk perception	0.01	4	2020
20	Risk society	0.01	4	2020

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Hotspot 1: Online education

The outbreak of the new crown epidemic has instantly made online teaching a social and academic research hotspot, and with it comes a series of problems. Studying the issues arising from online teaching under the new crown epidemic will facilitate the move toward normalization of online teaching and provide implications for future educational change. A total of 47 articles on online education in CNKI core journals were selected. These articles can be divided into two types according to their content: those that focus on the present and those that look to the future.

Focus on the present.

Table 2: Basic Online Education with Students as the Main Body

Author	Research Method	Perspective of Problem Concern
1 Zheng Qinhu, Qin Ting, Shen Qiang, Gui Yi, Zhou Xiaohong, Zhao Jingbo, Wang Yi, Cao Yiming.	Questionnaire Survey Method	Education Theory and Education Management; Computer Software and Computer Applications
2 Ma xiaona	Semi-structured Interview	COVID-19 Epidemic, Online Learning, Children's Perspective
3 Hu Yiling, Nie Jing, Gu Xiaoqing	Questionnaire Survey Method	Online Teaching, Education Equity, Suspension of Classes and Non-stop Learning, Digital Leadership.
4 Su zhixin	Empirical Research Method	American Basic Education, Distance Education, Education Quality
5 Wang Dongdong, Wang Huaibo, Zhang Wei, Wang Hairong	Questionnaire Survey Method	Suspension of Classes, Online Teaching, Different Subjects

From the article in Table 2, we can draw the following conclusions. As far as research methods are concerned, we can see from the figure that the basic online education with students as the main body mainly adopts the method of questionnaire survey, while semi-structured interviews and empirical research are relatively few. Research on online teaching in primary and secondary schools is still relatively rare in qualitative research.

Next, regarding the research perspective, in teaching, students, as subjects of learning, and teachers, as subjects of teaching, should all receive the same attention. The above-mentioned articles all focus on students, and only Liu Liming proposed to grasp the ideological education of teachers in time during the war "epidemic", actively explore the ways and means of ideological education of teachers, and enhance the pertinence and practicality of ideological education of teachers (Liu Liming, September 2020). Wang Dongdong, who discussed this issue from multiple subjects, proposed to investigate the attitudes of different subjects such as district and county education administrators, school administrators, teachers, students and parents to online teaching, and put forward corresponding measures to solve the problems during the epidemic, so as to ensure the healthy development of online teaching after the epidemic, and provide reference for coordinating the nationwide efforts to carry out online teaching to cope with the unforeseen public crisis in the future.

The content of educational issues is mostly discussed from the aspects of teaching equipment, software application and poor communication between teachers and students. Scholars have also given corresponding solutions.

Then about online teaching, we should try to develop a completely different model from offline teaching. The quality of education

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will be threatened if we still just apply the offline teaching style to online teaching.

Table 3: Causes of Problems in Online Teaching

Author		Research Method		Perspective of Problem Concern
1	Yang Jinhua	Literature Method	Research	Emergency, Educational Emergency Management System, Legal Regulation, Rights Protection
2	Wang Hui	Literature Method	Research	COVID-19 Epidemic Situation, International Chinese Education, Online Chinese Teaching, Problems, Countermeasures

From the Table 3, we can see that education governments and schools around the world have an incomplete understanding of online education policies. Any higher education reform includes two levels: theory and practice. Theory solves the problem of ideas and plays a leading role of "thinking first". Technology solves the problem of application and puts educational concepts into practice. Without the support and guidance of advanced educational theory, it is impossible to realize the reform and progress of educational teaching methods (Wu Daguang, 2020). There is a certain deviation between online education advocated by the government and online education understood by local governments.

Next, teachers' lack of information literacy. Many teachers lack information literacy, lack of online teaching experience, and are unfamiliar with the teaching platform, so they can't change from online teaching mode to offline teaching mode in time, which leads to rigid teaching process. Students gradually lose interest in the dull classroom, and teachers are gradually rejected by students. Finally, the teaching mode is limited. In traditional teaching, information technology is only an auxiliary means, and teachers are dominant (Wang Hui, 2021). However, online teaching is more dependent on information technology and emphasizes the "deep integration" of information technology and course teaching. The teaching mode has not changed from teacher-centered to information technology-centered. For some practical courses, online teaching reduces the operability of these courses to a great extent, which limits the subjective initiative of both teachers and students.

Look into the future.

Table 4: Online Teaching Policy

Author		Research Method		Perspective of Problem Concern
1	Daguang	Literature Research Method		Keywords Epidemic Situation, Traditional Chinese Medicine, Education
2	Mao junquan	Literature Research Method		Online Teaching, The Future Development Trend of Online Teaching
3	Li Zhengtao	Literature Research Method		Online and Offline Integrated Teaching, Online Learning, Basic Education

From the Table 4, we can see that scholars in the education community have their own ideas on how to develop education under the outbreak.

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Scholars in the educational circles generally discuss two directions. The representative viewpoint mainly includes the idea of "normalization" online teaching from this "emergency" online education (Wu Daguang, 2020). There is also the idea that the integration of online teaching and offline teaching, the integration of home-based learning and school-based learning, and the integration of on-campus education and off-campus education have contributed to the coming of the era of "two-line teaching" and "two-line integrated teaching" (Li Zhengtao, 2020). To sum up, no matter which point of view, online education has become the mainstream teaching mode under the influence of epidemic situation, and it has irreplaceable application value when the external environment changes greatly.

Table 5: The Change of Curriculum Design

Author	Research Method	Perspective of Problem Concern
1 Zhai Qing, Jiao Nan, Yan Yonghong, Gu Xiaohong	Normative Research Method	Keywords Epidemic Situation, Traditional Chinese Medicine, Education
2 Daguang	Literature Research	Online Teaching, Teaching Mode, Teaching Reform
3 Luoling	Case Analysis Method	Distance Teaching, Chinese Teaching, Teaching Software, Teaching Form
4 Gaoyuhua	Normative Research Method	International Chinese Education, Online Chinese Teaching
5 Huang Yao	Questionnaire Survey Method	Education, Online Education, Social Needs, Empirical Research
6 Wang cheng	Normative Research Method	Teaching, Body Building Course, Instructional Design
7 Wang Fulan, Liao Bizhen, Zhang Yu, Hu Yan, Wang Li, Wang Lin.	Normative Research Method	Teaching Mode, Obstetrics and Gynecology Nursing
8 Shao Jing, Wang Changzhong, Guan Yan, Wu Daqiang, Rebecca, Wang Benfan	Normative Research Method	Keywords Immunology, Online Teaching, Teaching Philosophy
9 Zhang Ge, Jin Minli, Wang Guan, Li Xia	Normative Research Method	Immunology, Gradual and Diversified Teaching Mode
10 Wu Xiaomeng, Li Shuling, Xu Jingzhu	Qualitative Interview and Data Analysis	Online Teaching, Exploring Community, Critical Thinking Development

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With the outbreak of COVID-19, students can only attend classes at home, so how to adjust courses such as medicine and physical education, which especially need offline teaching, has become a big problem. From the Table 5, we can see that there are many domestic studies in this field.

Table 6: The Fairness of Online Education

Author	Research Method	Perspective of Problem Concern
1 Xue Eryong, Fu Wangqian, Li Jian	Literature Analysis Method	Online Education, Educational Equity, Educational Policy
2 Hu Yiling, Nie Jing, Gu Xiaoqing	Questionnaire Method	Online Teaching, Education Equity, Suspension of Classes and Non-stop Learning, Digital Leadership.
3 Wu Zhihui, Shi Qiuhe, Yang Xiaojun, Zhao Jianmei, Chen Peng, Mao Jian, Li Changji	Case analysis method	Online Teaching, Regional Teaching, Educational Equity and Balanced Development of Education.

Education equity has always been a hot topic of discussion. From the Table 6 we can summarize the following reasons. Online education has a high demand for equipment, so areas with poor economic development will be affected by this problem, especially in terms of teachers and educational equipment.

There is still a certain gap between students in rural schools and those in urban schools in terms of basic conditions.

Overall, online education is in the top three research hotspots. The epidemic prevention policy of the new crown requires students to attend classes at home, and online education has become the main force in the implementation of "no classes, no school" during the epidemic prevention and control phase for the first time, covering all subjects of all school levels nationwide (Zheng Qin, 2020). Online education is a good way to relieve parents' anxiety and implement the national education policy. Educational technology is profoundly changing the way higher education is managed and taught, and it is not known to what extent the current online teaching can change the normal teaching activities. Since "leading" is the development goal of higher education in China, it is particularly important to accumulate online experience for regular teaching through this large-scale online teaching. Looking back at the history of university development in China and abroad, we can see that the major changes in higher education in the world are almost always caused by some "episodic" events (Wu, 2020). The "episodic" new crown epidemic has had some impact on education, but it has also brought attention to the online teaching model. Online education has challenged our traditional teacher-driven education model, and this may be a good opportunity for students to take full advantage of their motivation.

Hotspot 2: Mental Health Education

A total of 11 articles about mental health education in CNKI core journals were selected. From the group classification, it can be roughly divided into three categories, namely, children and adolescents, middle school students, college students, teachers and residents.

Table 7: Children and Teenagers

Author	Research Method	Perspective of Problem Concern
Liu Yujuan	Literature Analysis Method	Psychology; Children and Teenagers
Wait for Liu Jiajia.	Literature Analysis Method	COVID-19; Children and Adolescents; Mental Health

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It can be seen from the Table 7 that China pay much attention on children's psychological problems. In 2020, the first year of the outbreak of COVID-19, Liu Yujuan published an article entitled "A Review of the Research on Children and Adolescents' Mental Health under the Background of COVID-19". This article summarizes the related articles inside and outside of China about the negative impact of COVID-19 epidemic on children's and adolescents' psychology, and on this basis, proposes that the quality of children's and adolescents' psychological services can be improved by improving the social support system under the background of normalization of epidemic prevention and control and construction of social psychological service system (Liu Yujuan, 2020). On this basis, Liu Jijia et al. continued to explore the possible mental illness of children under the COVID-19 epidemic, and discussed the coping measures that the government, society and families can take, and put forward suggestions on how to promote the psychological recovery of children after the epidemic (Liu Jijia et al, 2021).

Table 8: Middle School Student

Author	Research Method	Perspective of Problem Concern
Sun Zhen, etc	Questionnaire Survey Method	Health Education; Regression Analysis; Knowledge; Attitude; Practice

As shown in Table 8 above, besides the research on the psychology of children and adolescents, Sun Zhen and others investigated 4531 middle school students. Through the "Questioning Star" platform, the school sent a questionnaire QR code through QQ or WeChat group to investigate the current situation of students' health knowledge, attitude and behavior under the normalization of prevention and control in COVID-19. Using SPSS17.0 statistical software to complete the statistical analysis of data, it is concluded that there is room for improvement in the awareness rate and behavior possession rate of COVID-19 prevention and control among middle school students in Wuhan, and health education should be targeted (Sun Zhen, 2021).

Table 9: College Student

Author	Research Method	Perspective of Problem Concern
Shu Manling, Liao Xinyi and Qin Lulu	Questionnaire Survey Method	Mental Health; Family Economic Level; Family Function; College Student
Liu Haijuan, Chen Ju and Ziming He	Questionnaire Survey Method	Mental Health; Influencing Factors; Psychological Support and Intervention; College Student

Two articles about college students' mental health were selected. See Table 9 above. One is that Liu Haijuan and others used the Depression-Anxiety-Stress Scale (DASS-21) to study the psychological symptoms of 6157 college students and their influencing factors. The research shows that there is a general stress among college students, and under the COVID-19 epidemic, college students with poor family economic situation are more susceptible to the epidemic, which leads to stress (Liu Haijuan, Chen Ju and Ziming He, 2021). The other is Shu Manling and others, who specially studied the psychological state of college students in Changsha. The research results are basically consistent with those of Li Haijuan and others. (Shu Manling, Liao Xinyi and Qin Lulu, 2021).

Table 10: Teacher

Author	Research Method	Perspective of Problem Concern
Zhao Fuxue	Literature Method; Logical Analysis Method; Information Research Method	Physical Education Teacher; Healthy Teaching Quality; Physical Education Teaching

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In addition to the research on students, Zhao Fuxue has summarized and analyzed the structural imbalance of moral and health teaching literacy by using the literature data method, information research method and logic analysis method, and systematically thought and designed the reduction path (Zhao Fuxue, 2020). As shown in Table 10 above.

Table 11: Resident

Author	Research Method	Perspective of Problem Concern
Kong Haonan, etc	Questionnaire survey method	Health Education; Investigation; Prevention and Control
Wei Xiaomin et al	Questionnaire survey method	Health Education; Knowledge; Behaviour

There are two articles on health education for residents under the COVID-19 outbreak. As shown in Table 11. One was an electronic questionnaire survey of 15,391 residents in Chaoyang District through a sample survey. It concluded that men have lower awareness of prevention and control than women, higher urban residents than rural residents, and the higher the literacy level, the higher the awareness rate (Kong Haonan, 2020). The other article also used a self-developed electronic questionnaire through the Shanghai WeChat official account to investigate 1,135 Shanghai residents who voluntarily filled in the questionnaire to analyze the memory degree of different characteristics' popular science content, the knowledge of epidemic prevention and control and the differences in epidemic prevention and control. The results are largely in agreement with the previous study. The analysis shows that the memory of popular science content aged less than 30 years old or below is poor; men practice poor protective behavior compared with women (Wei Xiaomin, 2021).

The prevalence of COVID-19 has had a profound impact on the public's mental health. Among them, the psychological state of college students is particularly noteworthy. In Figure 2, we can also find the high frequency word "college students" in the 6th place. In order to block the spread of COVID-19 epidemic to campus, it is normal for college students to postpone the start of school and close the school. For college students, extended holidays, long-term home stay, less going out to school and participation in social activities will increase the chances of students' anxiety and depression. Besides, college students are a group with a high prevalence of mental illness for a long time. In 2016, Xu Kaiwen, deputy director of Peking University Mental Health Education and Counseling Center, put forward "I don't know why I live, and what is the value and significance of living" in his speech on "The Economics of Hollow Diseases and Anxiety in Times". This phenomenon is called "Hollow Diseases". One-sidedness of self-cognition, limitation of independent development, marginalization of knowledge exploration and heterogeneity of achievement recognition lead to the formation of students' "hollow disease" (Zhu Yanfei, Wang Yunlai, Lu Linhai, 2018). During the epidemic period, to save similar mental diseases such as "hollow disease", although schools need to pay attention to and guide them, the most important strategy is that students should give full play to their subjective initiative and actively explore the goals that they are interested in and want to fight for all their lives.

3.2 Priorities in the Context of the Outbreak of COVID-19 Overseas

Using CiteSpace 5.5.R2, the research hotspots are judged by keyword frequency, centrality and other indicators, and the keyword collinear map is drawn. By sorting out the word frequency, the top 20 keywords are selected as hot high-frequency words representing international networks, All of the above data can be found in Table 12 below.

Table 12: Top 20 educational high-frequency words under COVID-19 epidemic abroad.

serial number	keyword	centrad	frequency	time
1	Higher education	0.06	21	2021
2	Covid-19 pandemic	0.05	20	2020
3	Metal health	0.05	19	2020

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4	Online teaching	0.05	19	2021
5	Medical education	0.02	9	2020
6	Public health	0.02	9	2021
7	Online teaching	0.01	5	2020
8	Medical student	0.01	5	2020
9	Nursing student	0.01	4	2021
10	Distance learning	0.01	4	2021
11	College student	0.01	4	2021
12	Risk factor	0.01	4	2021
13	Social media	0.01	4	2021
14	Digital divide	0.01	4	2021
15	Emergency remote teaching	0.01	3	2021
16	Physical education	0.01	3	2022
17	Higher education institution	0.01	3	20 22
18	Quality of life	0.01	3	20 21
19	Health policy	0.01	3	20 21
20	Online education	0.01	3	20 21

Hotspot 1: Online Education

First of all, from the key words, we can see that several major areas of concern at home and abroad are basically the same: COVID-19, online teaching and mental health. However, the difference is that international scholars pay more attention to practical courses for medical students. For example, the article "The Experience of COVID-19 A Full-time Academic Nurse Educator During the Covid-19 Pandemic." (Gazza, Elizabeth A., 2022) tells how to improve the nursing education under the epidemic situation and gives specific suggestions. Although there are medical related studies in China, there are few articles. More attention is paid to physical education class, bodybuilding class, obstetrics and gynecology class and other courses that need offline practice.

Secondly, with regard to research methods, Chinese scholars basically adopt quantitative research. Select a certain age group or a certain area group, and fill in the online questionnaire. Most international scholars adopt qualitative research. For example, What might the future bring? COVID-19 planning considerations for faculty and universities. (Majowicz SE. 2020)

Finally, with regard to the research content, China pays more attention to the effect of online education, the formulation of online education strategies and students' physical and mental health, while international scholars pay more attention to teachers' physical and mental problems, education equity and other issues. For example, teachers under stress during the covid-19: cultural differences. (Moranzad OK Bonehe etc, 2022). This article analyzes the causes and classification of the pressure caused by teachers in different regions facing COVID-19.

Hotspot 2: Mental Health Problems

Different from that of Chinese scholars, the groups concerned abroad are more extensive. Besides, international scholars pay more attention to teachers' mental health, while Chinese scholars pay more attention to students' mental health. In addition, in terms of mental health in international scholars, there are also nurses and doctors as the subjects of investigation. From this point of view, the investigation on mental health is still lacking in China.

4. RESEARCH FRONTIER AND TREND JUDGMENT

4.1. Research frontier and trend analysis in China

Based on literature research, combined with the time nodes of keyword clustering time chart, the research process of COVID-19 in China can be divided into two stages.

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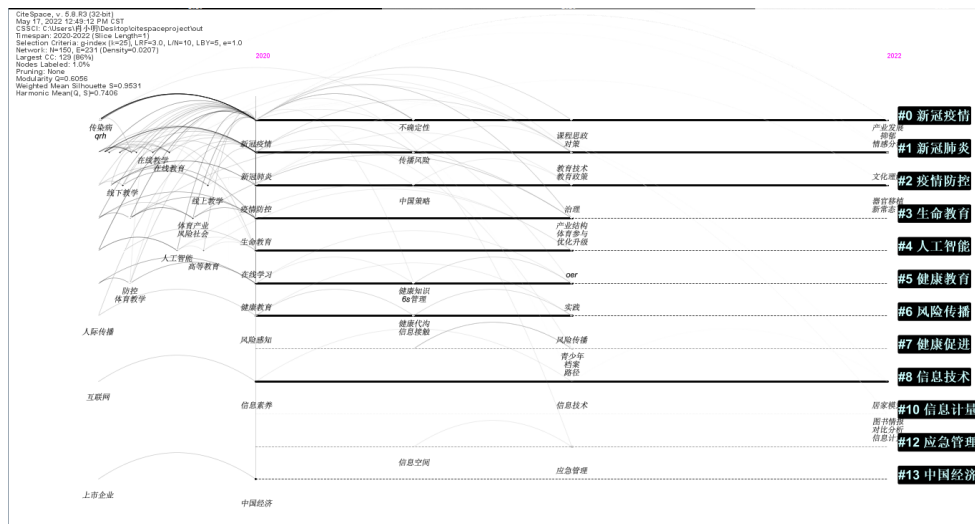


Figure 2: Domestic keywords clustering time line chart

From the figure 2, we can see that the domestic COVID-19 epidemic can be divided into two stages.

The first stage: 2020-2021, the first year of the outbreak of the epidemic in COVID-19. According to the cluster analysis of #0 COVID-19 epidemic, #1 COVID-19 epidemic, #2 epidemic prevention and control, #3 life education and #5 health education, Chinese research articles basically focus on COVID-19 and education.

The second stage: from 2021 to 2022, China entered the post-epidemic era. As a result of the COVID-19 epidemic, the shutdown policy implemented by the state has brought certain influence to all walks of life. The theme of this year has also shifted from paying attention to the COVID-19 epidemic to how to restore industrial development, how to treat people's mental illness, and how to optimize and utilize community management.

4.2. International research frontier and trend analysis

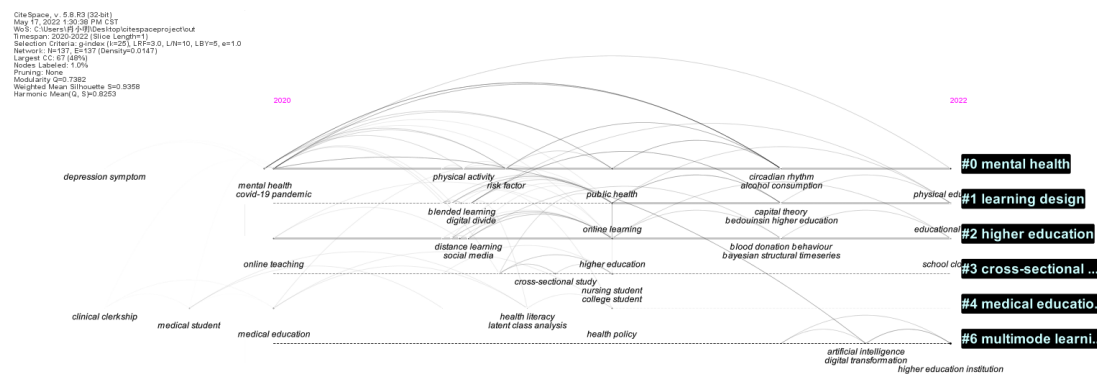


Figure 3: Foreign keywords clustering time line chart

From the figure 3, we can find that the COVID-19 outbreak abroad can be divided into two stages.

The first stage: 2020-2021, according to the cluster #0depression, #1high education, #2knowledge, #3teacher education, #4children, #5university student, it can be seen that international research on COVID-19 epidemic has shifted from the stage of education, psychology and protection to the influence of COVID-19 on people of different ages, medical college students, information technology, etc.

The second stage: from 2021 to 2022, according to cluster # 8Vaccinate and #9telemedicine, this year, the research focus abroad turned to infectious diseases, vaccines and consumption.

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5. COMPARATIVE ANALYSIS OF RESEARCH ON ONLINE POLITICS INSIDE AND OUTSIDE OF CHINA

With the outbreak of the COVID-19 epidemic, the research on education under the COVID-19 epidemic has been increasing at home and abroad. There are similarities and differences in the research hotspots and trends of education under the epidemic situation of COVID-19 at home and abroad.

5.1. Number of Papers

On the one hand, judging from the total number of articles, Chinese research is basically the same as international research; On the other hand, from the high-frequency words, we can see that Chinese articles pay great attention to the COVID-19 epidemic itself, and the number of articles accounts for 42%. From here, we can also see China's determination and attitude to actively respond to the COVID-19 epidemic. However, the number of international papers about the COVID-19 epidemic itself is far less than the number of such papers about the impact of the COVID-19 epidemic on education and psychology. From here, we can see that international scholars pay more attention to research on mental health, and we can also see their negative attitude towards COVID-19 epidemic.

5.2. Research Method Level

Scholars use diversified research methods, Chinese scholars mostly use questionnaire survey, while international scholars mostly use case analysis and qualitative research.

5.3. Online Education

The Chinese policy to effectively prevent the further spread of NCCP is to adopt an online education policy, and some senior and junior high school students are allowed to be closed at school. Other countries have adopted a policy of online education for higher education, but children are allowed to return to school. From the Chinese point of view, junior high school, senior high school is a critical period for learning, and in order to effectively select talents, the state allows this part of students to be educated offline. Unlike the education policy in China, other countries consider that children have a low rate of neonatal pneumonia infection and can be allowed to return to school. From these two different policies, we can see the difference in education policies and educational philosophy in China and abroad.

5.4. Mental Health

In terms of quantity, there are only 7 articles on mental health under COVID-19 epidemic in China and 28 articles on mental health under COVID-19 epidemic abroad. It can be said that it is more than that in China, and the research on mental health under COVID-19 epidemic situation in China is relatively weak. From the refinement of mental illness by high-frequency words "depression", "mental health", "stress", "care" and "anxiety" studied abroad, we can see that international scholars attach great importance to people's mental health under the COVID-19 epidemic. It's just a simple "mental health" in China. In addition, the research objects of this kind of papers on mental health under the COVID-19 epidemic in China are basically students, mainly college students; The research objects of international papers on mental health under the COVID-19 epidemic are not only college students, but also doctoral students, teachers, nurses and doctors. The scope of international research objects is wider, not only limited to students.

6. ENLIGHTENMENT

Based on Cite Space software, this paper makes a bibliometric analysis of the educational research under the COVID-19 epidemic in 2020-2022 at home and abroad. The research shows that with the increasing attention of various countries, the number of articles published on educational research under the COVID-19 epidemic has increased significantly. The research on COVID-19 epidemic abroad is relatively intensive, while the Chinese research is still in a weak position. From the research hotspots, there is no obvious difference between China and other countries, all of which focus on COVID-19 epidemic, online education and mental illness.

The first is the dilemma of online education. Scholars mostly conduct research from two levels: "online" and "teaching". The debate about educational technology has become a research hotspot at present. Besides, scholars have also offered their opinions and put forward various online teaching strategies. But what is the effect of the teaching strategies? There are still very few articles about this kind (Liu Jiejun, 2020). The state should investigate the poor areas of teaching equipment and purchase the equipment

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accordingly. Schools should formulate corresponding teaching strategies in time, and students should actively cooperate with teachers and schools.

Secondly, the dilemma of mental illness. First of all, for students, parents should pay attention to the psychological problems of children and adolescents. Usually, social support from outside the family can reduce the emotional and behavioral problems of children and adolescents in disharmonious families. However, during the COVID-19 epidemic, social isolation measures were taken, and children and adolescents lacked psychological services from schools and other institutions, and their dependence on families increased. During the epidemic, the family, as the smallest unit, is particularly important for the healthy development of teenagers. (Liu Yujuan; 020) Secondly, for teachers, facing the sudden change of teaching mode, teachers should adapt to the new teaching mode and change teaching strategies as soon as possible. Also pay attention to your mental health and seek psychological help in time. Finally, for residents, it is necessary to coordinate with the adjustment of COVID-19 epidemic policy in time, help the state to deal with the epidemic situation, and strive for clearing it at an early date. During this period, residents can seek help from the community to solve their psychological problems.

REFERENCES

- 1) Zheng Yuqing, and Liu Chujia. "A Summary of Research on the Integration and Development of Vocational Education and Community Education in China (2000-2020) — Based on CiteSpace Knowledge Map Analysis." *Adult Education* 41.10(2021):30-38.
- 2) Liu Liming. "Rational Thinking of College Teachers' Ideological Education in the Situation of War and Epidemic." *China Higher Education*. 09(2020):27-29.
- 3) Wu Daguang. "Review and Reflection on the Evolution of Educational Technology-From the Perspective of Online Teaching in Colleges and Universities under the Background of COVID-19 Epidemic." *China Higher Education Research*. 04 (2020): 1-6+11. doi: 10.16298/j.cnki.1004-3667.2020.04.01.
- 4) Wang Hui. "International Chinese Education under the Influence of COVID-19 Epidemic: Problems and Countermeasures." *Language Teaching and Research*. 04(2021):11-22.
- 5) Li Zhengtao. "Where is the basic education going in the post-epidemic era?" *Basic Education* 17.03(2020):94-98.
- 6) Zheng Qinhu, et al. "Current situation, problems and countermeasures of online teaching during epidemic." *China Audio-visual Education*. 05(2020):34-43.
- 7) Liu Yujuan. "A Review of Research on Children and Adolescents' Mental Health in the Context of COVID-19 Epidemic." *China Special Education*. 12(2020):89-96.
- 8) Liu Jiajia, et al. "The impact of COVID-19 epidemic on children and adolescents' mental health and countermeasures." *Science and Technology Herald* 39.18(2021):20-24.
- 9) Sun Zhen, et al. "Investigation on health knowledge, attitude and behavior of middle school students in Wuhan under COVID-19 normalization prevention and control." *China School Health* 42.04 (2021): 542-546. doi: 10.16835/j.cnki.1000-9817.2021.04.015.
- 10) Liu Haijuan, Chen Ju, and Ziming He. "Study on the mental health status of college students and its influencing factors during the COVID-19 epidemic." *china safety science journal* 31.05 (2021): 168-173. doi: 10.16265/j.cnki. ISSN 1003-3033.2021.05.025.
- 11) Shu Manling, Liao Xinyi, and Qin Lulu. "Mental health status and influencing factors of college students in Changsha in the post-epidemic era." *Chinese Journal of Health Psychology* 29.11 (2021): 1712-1717. doi: 10.13342/j.cnki.cjhp.2021.11.024.
- 12) Zhao Fuxue. "Analysis of the unbalanced characteristics of physical education teachers' health teaching literacy under the background of fighting against epidemic situation and thinking on its restoration." *Journal of Beijing Sport University* 43.03 (2020): 149-156. doi: 10.19582/j.cnki.11-3785/G8.2020.03.019.
- 13) Kong Haonan, et al. "Survey on the awareness of COVID-19 prevention and control among residents in Chaoyang District of Beijing." *China Public Health* 36.06(2020):959-962.

Education Research in the Context of the COVID-19 Pandemic: Top Priorities, Comparisons Inside and Outside China, and Future Trends

- 14) Wei Xiaomin, et al. "Knowledge and behavior of COVID-19 epidemic prevention and control among the audience of" Healthy Shanghai 12320 "WeChat in WeChat official account." China Health Education 37.08 (2021): 709-713. doi: 10.16168/j.cnki.issn.1002-9982.2021.08.
- 15) Zhu Yanfei, Wang Yunlai, and Lu Linhai. "A qualitative study on why" hollow "college students become hollow." Heilongjiang Higher Education Research 36.10(2018):132-138.
- 16) Liu Zan-jun. A Study on the Problems and Causes of Large-scale Online Teaching Management in Primary and Secondary Schools during the Epidemic Period. 2021. Hebei Normal University, MA thesis.
- 17) Gazza, Elizabeth A.. The Experience of Being a Full-Time Academic Nurse Educator During the COVID-19 Pandemic. Nursing Education Perspectives: 3/ 4 2022 - Volume 43 - Issue 2 - p 74-79 doi: 10.1097/01.NEP.0000000000000933
- 18) Majowicz SE. What might the future bring? COVID-19 planning considerations for faculty and universities. Epidemiol Infect. 2020 Apr 29; 148:e92. doi: 10.1017/S0950268820000898. PMID: 32345390; PMCID: PMC7218190.
- 19) Moran Zadok Boneh, Rinat Feniger-Schaal, Tali Aviram Bivas & Alexandra Danial-Saad (2022) Teachers under stress during the COVID-19: cultural differences, Teachers and Teaching, 28:2, 164-187, DOI: 10.1080/13540602.2021.2017275



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