EMERGING TRENDS IN OER STUDIES IN CHINA (2001-2019) – A SCIENTOMETRIC ANALYSIS ON CITESPACE

Jin Zhu, Open University of China, China

Abstract

OER have played a key role in the development of distance education, and even the whole education field in China in the past 20 years. Thus, the papers and the research findings on OER in China, as a part of distance education studies, can show the situation of OER and also can show the situation of distance education in China in the past 20 years.

This research uses CiteSpace, an information visualization tool, to present and analyze the emerging trends in OER studies in China from 2001 to 2019. 563 papers are identified as the reference source from CNKI, the most important academic database in China. Eventually, the author comes up with the following findings: There are still lots of undeveloped land in OER study in China; Distance education institutions are the closest friends with OER studies; OER study is a good breakthrough point for pedagogy marching from macroscopic to microscopic; OER study started early in China; The studies about its development and evolution are abundant; OER studies are not specific and deep enough in China; Most of the researchers are from pedagogy; There should be more researchers from other disciplines, computer and economics for example.

Background and Research Question

In the year of 2001, MIT launched the "OCW" plan. (Yaner, Zhaoshan Liu, 2011; Jianpo Wang, 2004). In 2002, UNESCO held "OER in Developing Countries Forum", which made the year of 2002 become Year One of OER. More than 20 countries including China joined the OER movement (Liyan Shen, Aijun Zhao, Rong Dong, 2012; Jing Dong, 2015; Songhe Yuan Xuan Liu, 2014). The new trend, centred on the innovative development of information technology and the open communication of digital educational resources, had emerged in some forward-looking institutions, which included top public and private universities, as well as cultural and education-related foundations and international organizations deeply involved in open education programs (Guodong Zhao, 2009; Ying Yang, 2018; Shufang Wu, 2013). Based on online courses and national classic courses, China has opened high-quality video open courses and high-quality resource-sharing

courses in combination with foreign advanced experience, and established OpenEDX, THEOL, Netease open courses and other open resource platforms (Xiaogeng Chen, Dingming Wang, 2013; Yimin Jia, 2008). So, China have made great progress in the field of open education.

OER have played a key role in the development of distance education, and even the whole education field in China in the past 20 years. Thus, the papers and the research findings on OER in China, as a part of distance education studies, can show the situation of OER and also the situation of distance education in China in the past 20 years. So the research question is: Emerging Trends in OER studies in China (2001-2019).

Data Collection and Methodology

Data Collection

All the data is collected from CNKI by "Advanced Search". CNKI, who contains about 96% of all kinds of core periodicals, is the most extensive dynamic database of academic papers in China. Data is collected from two kinds of database of CNKI: periodical database and doctor and master thesis database.

1. periodical database: (core journal = Y) and year between (2001, 2019) and (((topic = Chinese and English expansion (oer, Chinese and English) or title = Chinese and English expansion (oer, Chinese and English) or v_subject =oer) or (topic = open education resources or title = open education resources or v_subject = Chinese and English expansion (open education resources, Chinese and English)) or ((keyword % Chinese and English expansion (oer, Chinese and English) or Keyword %oer) or (keyword% open education resources or Keyword% Chinese and English expansion (open education resources, Chinese and English)))) (fuzzy match);

2. (core journal = Y) and year between (2001, 2019) and (((topic = Chinese and English expansion (oer, Chinese and English) or title = Chinese and English expansion (oer, Chinese and English) or v_subject =oer) or (topic = open education resources or title = open education resources or v_subject = Chinese and English expansion (open education resources, Chinese and English)) or ((keyword % Chinese and English expansion (oer, Chinese and English) or Keyword %oer) or (keyword% open education resources or Keyword% Chinese and English expansion (open education resources, Chinese and English)))) (fuzzy match). At last, there are 563 papers identified as the reference source data.

Analytical Method

Statistical tool Excel2007 and information visualization tool CiteSpace are used in this research. Citespace is a mapping knowledge domains tool, which is developed by Chaomei

Chen, a vice professor in Drexel University, Philadelphia, USA. It's a dynamic complex network analysis and can help the researcher to get the hotspots and fronts of the research.

Based on the primary analytical method CiteSpace, the research question is divided into three research directions:

1. Trace back the number and growth of OER studies, and then reveal their basic characteristics (literature statistics);

2. Show the development of OER studies by analysing the changes in the publications; (the number of publications, total citation frequency, average citation frequency of different institutions and authors, the keywords with different frequency of occurrence, different keywords, etc.) (literature analysis);

3. Pick up the core author groups and core research contents by the perspective of cluster, to show the changes of the research frontiers, evolution paths and research contents of different stages.

Research Finding

Core Research Group

CiteSpace is used to do the first kind of operation and Chart 1, Chart 2 and Table 1 are generated.
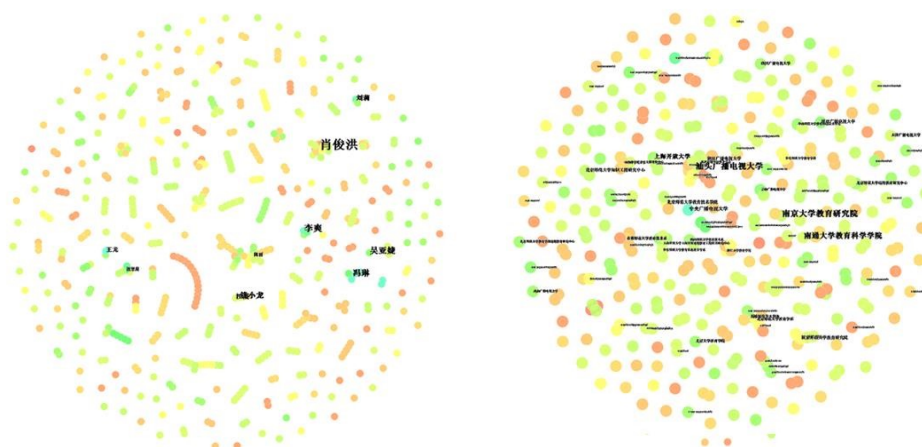

Chart 1. and Chart2. Core author and core organization in OER studies in China from 2001 to 2019

Table 1: Ranking list of the numbers of papers about authors and research institutions in OER studies in China

		Core Author on OER Study				Core Organization on OER Study	
Rank	Numbers of Paper	Author	Organization	Initial Years	Numbers of the Paper	Organization (first author)	Initial Year
1.	70	肖俊洪	汕头广播电视大学	2001	32	汕头广播电视大学	2001
2.	20	陈丽	北京师范大学教育学部远程教育研究中心	2001	10	南京大学教育研究院	2013
2.	20	卡莱娜·博苏	澳大利亚塔斯马尼亚大学	2001	9	南通大学教育科学学院	2014
2.	20	克里斯蒂安·迈克尔·施特拉克	荷兰开放大学	2001	9	中央广播电视大学（国家开放大学）	2006
3.	16	郑勤华	北京师范大学教育学部远程教育研究中心	2001	7	上海开放大学	2012
4.	14	赵宏	北京师范大学教育学部远程教育研究中心	2001	5	北京师范大学知识工程研究中心	2013
5.	13	爱芭·奥西恩尼尔森	瑞典远程教育协会	2001	5	北京师范大学教育学部远程教育研究中心	2001
6.	12	李爽	北京师范大学远程教育研究中心	2007	5	浙江广播电视大学	2014
7.	11	冯琳	中央广播电视大学（国家开放大学）	2006	5	陕西广播电视大学	2011
7.	11	吴亚婕	中央广播电视大学（国家开放大学）	2011	5	国家开放大学教育研究院	2015
8.	9	钱小龙	南通大学教育科学学院	2014	4	英联邦学习共同体	2012
9.	8	刘莉	天津广播电视大学	2006	4	首都师范大学教育技术系	2016
10.	7	王龙	中国人民公安大学	2006	4	北京大学教育学院	2012
10.	7	汪霞	南通大学教育科学学院	2014	4	北京师范大学教育学部	2015
11.	5	祝智庭	华东师范大学	2009	4	天津广播电视大学	2006
12.	5	曹凤余	中央广播电视大学（国家开放大学）	2007	4	四川广播电视大学	2012
12	5	李亚婉	中央广播电视大学（国家开放大学）	2007	4	北京师范大学远程教育研究中心	2012

About the core author

Authors, who started publishing between 2001 and 2011, account for 88% of the total number of core authors and 94% of the total number of core paper authors in the first ten years (2001-2011). However, the numbers of emerging core research authors and their papers are less than 10% of the total in the second ten years (2011-Now). So, we can say in the past 20 years, the number of core authors and their papers are growing.

But after 2011, the new core papers disappeared. It means the core authors shifted their focus.

About the core organization

From the Table 1, we can see the top 5 research Institutions(universities) are: Open University of Shantou(32), Institute of Education Nanjing University(10), School of Education Science Nantong University(9), Open University of China(9,OUC) and Open University of Shanghai(7).

The first ten years, 2001-2011, is the period of sprout and prosper. The organizations are a few in number. The contents of the papers are mainly about the introduction of the OER and are lack of specific research. The second ten years, 2011–now, is the period of sustained development. There are more new star organizations and the papers from some star organizations formed clusters.

Research Characteristics

CiteSpace is used to do the second kind of operation and Table 2 is generated.

Table 2: 11 top Clusters in OER Studies Direction in China from 2001 to 2019

Cluster	Aggregation	Research Topic	Key Papers	Methodology	Initial Years
#1	147; 0.47	开放教育资源 OER (Chinese)	混合学习:定义、策略、现状与发展趋势——与美国印第安纳大学柯蒂斯·邦克教授的对话；大规模开放在线课程的国际现状分析；基于 SPOC 的翻转课堂教学设计模式在开放大学中的应用研究；教育变革中的技术力量；智慧教育体系架构与关键支撑技术； MOOCs 对我国精品资源共享课建设的启示研究；观照 MOOCs 的开放教育正能量；开放教育资源:国际远程开放教育领域的热点话题——2007 ICDE SCOP 会议综述	Interview Literature Empirical Analysis Concept Intro Concept Intro Literature Empirical Analysis Interview	2007
#2	88; 0.12	开放教育 Open education	MOOC:一种基于连通主义的巨型开放课程模式国内 MOOC 研究现状的文献分析 混合学习:定义、策略、现状与发展趋势——与美国印第安纳大学柯蒂斯·邦克教授的对话 "后 MOOC"时期的在线学习新样式大规模开放在线课程的国际现状分析	Concept Intro Literature Interview	2002
#3	49; 0.16	开放大学 Open University	开放和远程教育中学生学习支持之理念与模式基于 SPOC 的翻转课堂教学设计模式在开放大学中的应用研究国家开放大学建设:改革与创新移动学习:国际研究实践与展望——访英国开放大学迈克·沙普尔斯教授学生支持服务:大卫·西沃特的理论与实践 中国电大的定位和走向"世界一流开放大学"的道路——国外经验和国际比较的视角	Concept Intro Status Analysis Teaching Model Concept Intro Interview Concept Intro Concept Intro	2011
#4	48; 0.09	Mooc	在线教育的"后 MOOC 时代"——SPOC 解析 MOOC 的发展及其对高等教育的影响 MOOC:一种基于连通主义的巨型开放课程模式国内 MOOC 研究现状的文献分析基于 MOOC 的大学英语翻转课堂教学模式研究	Concept Intro Status Intro Concept Intro Literature Empirical Analysis	2013

#5	44; 0.51	远程教育 Distance education	开放教育的学习质量和设计:OpenEd 框架 MOOC 视角下中国开放远程教育的转型发展远程教育:一种平民教育的新形式 "互联网+"背景下远程教育与职业教育融合的模式与路径	Theoretical Innovation Status Analysis Concept Intro Status Analysis	2008
#6	36; 0.45	远程开放教育 Distance Open Education	远程开放教育"内涵型—集约式"发展的现实困境与优化策略全纳教育理念下实现成人远程开放教育的管理体系优化互联网+背景下少数民族地区远程开放教育课程辅导教师专业能力培养	Status Analysis Concept Intro Status Analysis	2006
#7	14; 0.09	远程教学 Distance Learning	高等教育与远程教育的新动向远程教学资源区域共建共享:现实形态与精神重构	Status Analysis Empirical Analysis	2008
#8	12; 0.05	广播电视大学 Radio&TV university	从电大发展看高等继续教育未来走向	Status Analysis	2009
#9	12; 0.08	Oer	职前教师基于 OERs 的自主学习模式及效果探析 ICTs、混合型学习和 TVET 转型 基于 OERs 的自我调节学习行为对学习成效的影响我国大学开放教育资源项目的实践及其发展	Empirical R Concept Intro Empirical Analysis Status Analysis	2008
#10	10	高等教育 High education	MOOC 的全球化发展与高等教育公平 ICDE 高等教育领导者会议探讨在线学习与社会发展 开放教育资源运动:高等教育的变革与挑战高等教育 e-learning 的设计和评价	Concept Intro Interview Status Analysis Empirical Analysis	2014
#11	\	人才培养模式 Talent Cultivation Model	深化教育领域综合改革的若干思考我国开放教育研究的热点分析及发展建议	Status Analysis Literature	2007

About the frequency of the research topics

The highest frequency research topics are OER(Chinese), OER(English), open education and distance education. The second frequency topics are the main organizations who run OER, OUC for example. The third are the forms of OER, MOOC for example. The fourth are the related topics about OER, talent cultivation model for example. About the methodology of the papers: interview, literature, concept introduction, status introduction and status analysis are used mostly to introduce the advanced ideas about OER abroad and explain the general situation of the Chinese OER development. Meanwhile, there are a few of empirical analysis and teaching model introductions, which are used to evaluate the validity, judge the factors of the influence and develop the Chinese previous theories and methods in China's conditions based on the foreign theories and methods.

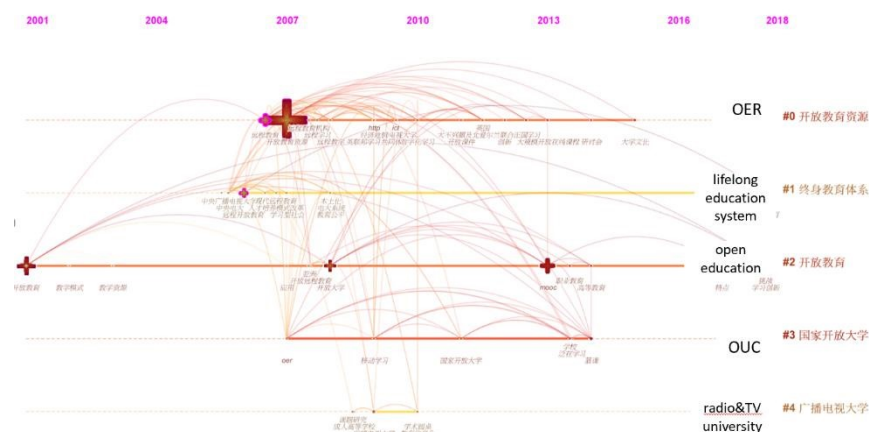CiteSpace is used to do the third kind of operation and Chart 3 is generated.

Chart 3. 5 top clusters about key words to 563 papers' titles in OER studies in China from 2001 to 2019

From Chart 2, we can see the top 5 key words about the 563 papers' titles are OER (Chinese), lifelong education system, open education, OUC and Radio & TV University. There are 4 hot points (4 crosses) in this chart. The biggest one is OER in 2007, and the three others are open education in 2001, 2008 and 2013. The arc in this chart means link. If there are lots of lines between two words, it means these two words are always mentioned together in one paper. For example, we can see open distance education V.S. MOOC, OER V.S. UK and OUC V.S. ubiquitous learning are close friends.

OER appeared in the research as a topic from 2001(It's quite early!), and it turned in a hot topic in2007.OER study achieved its peak from 2007 to 2013 and OER study began to decreased gradually after 2013.

Core Papers

CiteSpace is used to do the fourth kind of operation and Table 3 is generated.

Table 3:   2 core papers in OER studies in China from 2001 to 2019

Silhouette 轮廓	Label (TFIDF) 词频	Label (LLR)	Label (MI)	Mean (Cite Year)
0.62	(18.07) oer	oer	mooc	2010
0.713	/	继续教育 (continuing education)	/	2009

This research defines that the number of the silhouette is bigger than 0.5 means core paper, so only 2 papers are collected as core papers. They are: "New Dynamics of Higher Education and Distance Education", Stamenka Uvalic-Trumbic, chief of section for reform, Innovation and quality assurance, UNESCO, Sir John, President of Comonwealth of Learning, 2010; "The Future of the Higher Continuing Education from OUC Perspective", Daoka Ge, president of OUC, 2009. Both of 2 papers are the introduction of the general situation. Both of them are macroscopic and from officers but not researchers.

The number of the high quality papers is few and is increasing slowly and there is no core paper from 2001-2008 and 2011-now.

Conclusion

After the study, we can get the following conclusions:

1. There are still lots of undeveloped land in OER study in China (quantity and quality).

2. Distance education institutions are the closest friends with OER studies.

3. OER study is a good breakthrough point for pedagogy marching from macroscopic to microscopic.

4. OER study started early in China.

5. The studies about its development and evolution are abundant.

6. OER studies are not specific and deep enough in China.

7. Most of the researchers are from pedagogy.

8. There should be more researchers from other disciplines, computer and economics for example (multi-interdisciplinary research).

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