

Research Status and Trends of Online Learning Platforms in China and Abroad

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Keywords: Online learning platform, Online learning, Social media, China, Review.

Abstract: As a tool which can't be ignored in online teaching, online learning platform has always been the focus of researchers. The variety of online learning platforms are rich and powerful, which is of great help to teaching practice. There have been many researches on online learning platform in the past few years. In order to ensure normal teaching during the epidemic period of COVID-19 in 2020, scholars' research on online learning platform was pushed to a new height. At present, there are few reviews that classify the online learning platform from the category. This paper classifies the online learning platforms in China and abroad, and systematically combs the current research status of online learning platforms at China and abroad from each category. The results show that the types of online learning platforms in China are mainly divided into live broadcast form, MOOC form and APP form, in which more attention is paid to teaching practice, teaching design and teaching reform. The types of abroad online learning platforms are mainly divided into learning management system (LMS) and social learning network (SLN). They pay more attention to the use effect, the prediction of students' learning behavior and the feasibility of the application of social media in teaching. Future research can pay more attention to the use of social media software in online teaching, so as to provide more possibilities for Internet teaching.

1 INTRODUCTION

As the support of online learning and blended learning, online learning platforms widely appears in teaching life and becomes a necessary tool for auxiliary teaching. At present, the most widely used online teaching platforms in the world are Blackboard, Moodle and Microsoft Teams. In China, online teaching platforms with more users include Superstar Learning APP, Rain Classroom, Tencent Meeting and so on. During the COVID-19 epidemic in 2020, as a tool to protect health and maintain normal teaching activities, the online teaching platforms attracted more attention in the educational circles and promoted the related research to a deeper level. Before the epidemic of COVID-19, the research on the exploration of online learning platforms paid more attention to the effect of use and effectiveness of the platform. Keith and Yoo (2018) tested the use of Google classroom and found that the use of Google classroom increased students' classroom participation and made the classroom more dynamic. Sadequle (2019) found that the use of

Google classroom can help teachers better complete the teaching work and help better communication between teachers and students. After the COVID-19 epidemic, people not only pay attention to the verification of the use effect of the online teaching platform, but also pay attention to the students' use experience, the choice of online teaching strategies and the feasibility of different types of network communication platforms in teaching. Basania (2020) surveyed students' views on Edmodo software as an online learning tool, and found that Edmodo enhances students' creativity, promotes the development of interaction and communication ability, and improves the activity of thinking. Ngepathimo and John (2021) proposed that in the online teaching during the epidemic period of COVID-19, we should not only pay attention to solve the technical problems such as network and interface, but also promote the development of students' critical thinking through reasonable teaching and rational use of the functions of the online learning platforms, so as to meet the learning needs of the new normal period. Through the online teaching of EFL students using Facebook, Ibrahim

(2021) found that the vocabulary mastery of students using Facebook was better than that of traditional teaching. Through the above analysis, we can find that the current research on the online learning platforms is mostly direct research on the platform, but lack of systematic classification of the online learning platforms. This paper systematically classifies the online learning platforms and reviews the literature of the online learning platforms from the category to help people understand the current research trend of the online learning platforms. At the same time, the categories and research focus on online learning platforms in China and abroad are compared to enrich the research on China online learning platforms and provide more possibilities for online teaching.

2 METHODOLOGY

In the form of literature review, this study systematically combs the research of online learning platforms in China and abroad, and grasps the current research status and research progress. By sorting out the relevant literature, the online learning platform is divided into different categories, and the literature is sorted out according to the category, researchers can refer to the results of this study to understand the current research situation in the field of online learning platforms in China and abroad, and to understand the similarities and differences between Chinese and abroad online learning platforms by comparing their respective research emphases, and then put forward targeted suggestions for improvement and improvement of the future online education practice, in order to obtain better online teaching results. The typical research articles which are studied in this paper are shown in table 1:

Table 1. Typical research articles studied in this paper

Author Name	China or Abroad	Research articles studied
E. B. Siahann	Abroad	Students' Perception of Edmodo Use as a Learning Tool
E. Evgenievich Egorov, etc.	Abroad	Moodle LMS: Positive and Negative Aspects of Using Distance Education in Higher Education Institutions
J. H. Liang	China	Research on the marketing strategy of Xueersi online education platform. Modern Marketing (Business Edition)
J. Wu	China	Who should learn and think?. Invention & Innovation
J. H. Du	China	Discussion on online higher Mathematics Teaching practice and Reform based on "Super Star platform + Tencent Meeting"
K. R. Heggart, J. Yoo	Abroad	Getting the Most from Google Classroom: A Pedagogical Framework for Tertiary Educators
M. Yu, etc.	China	Practice of online and offline mixed Teaching based on MOOC
M. S. Islam	Abroad	Bangladeshi University Students' Perception on Using Google Classroom for Teaching English
M. I. Mukhlif, A. a. I. Challob	Abroad	Enhancing Vocabulary Knowledge among Secondary School EFL Students by Using Facebook
N. Kadhila, J. Nyambe	Abroad	Barriers to the Quality of Emergency Online Pedagogies in Higher Education during the COVID-19 Pandemic: A Case Study from the University of Namibia
N. Kerimbayev, etc.	Abroad	Virtual educational environment: interactive communication using LMS Moodle
R. Conijn, etc.	Abroad	Predicting Student Performance from LMS Data: A Comparison of 17 Blended Courses Using Moodle LMS
V. Maphosa	Abroad	A UTAUT Evaluation of WhatsApp as a Tool for Lecture Delivery during the COVID-19 Lockdown at a Zimbabwean University
X. H. Yang, T. Meng	China	Application of Tencent Meeting combined with flipped classroom in MBBS production Teaching under the epidemic situation. Health Vocational Education

X. Y. Wang, Y. Li	China	Application of PBL Joint flipping Classroom based on Rain classroom in Obstetrics and Gynecology Teaching under the background of epidemic situation
X. X. Dong	China	A study on the Application of blended Teaching based on "Rain Classroom" in Pharmacology case discussion
X. C. Hu, etc.	China	Does China need mathematics education like "Xueersi online learning APP"?
Y. Wang, etc.	China	Design and practice of online flipping classroom Teaching Model based on "SPOC+ Live"-- taking Internal Combustion engine course as an example
Y. Y. Xu, J. Li	China	Blended Teaching practice of Foreign Architectural History course based on Rain Classroom. Technology Wind
Z. Li, L. B. Yu	China	The Construction and Teaching effect of Engineering Chemistry SPOC. Journal of Chemical Education

2.1 Research Question

The objective of this paper is to explore the current research status of online learning in China and abroad. By doing so, it is hoped that the advantages and disadvantages of current situation could be found and it could be a reference for the future research in this area.

In order to clarify the focus of the research, this paper puts forward the following research questions:

Q1: What are the current researches on online learning platforms in China?

Q2: Which aspects are the current researches on online learning platforms in abroad?

2.2 Searching Strategy

In order to solve this research questions, this paper uses the keyword "online learning platform" and "online teaching platform" to search in ERIC and CNKI. Through a comprehensive search of keywords, to comprehensively obtain the research literature about the online learning platform. Literature retrieval is carried out in different databases, among which abroad literature retrieval mainly comes from ERIC. Chinese literature retrieval mainly comes from CNKI.

3 RESULTS AND DISCUSSION

In the selection of literature, we select the categories of educational research, publicly available journal papers, conference papers and degree papers. Respectively sort out and summarize the collected Chinese and English literature to answer the two questions raised above. Therefore, this section is divided into two parts, one is the current researches on online learning platforms in China, the other is

the aspects of the current researches on online learning platforms in abroad.

3.1 What are the Current Researches on Online Learning Platforms in China?

At present, the research of online learning platform has received great attention in China. By using the CNKI to search the relevant literature, the results are shown in Figure 1. It can be found that after the COVID-19 epidemic in 2019, the number of research on online learning platform and online teaching platform increased significantly. Compared with 2020, the number of related articles has decreased in 2021, but on the whole, the research on online learning platform is still the focus of educational circles.

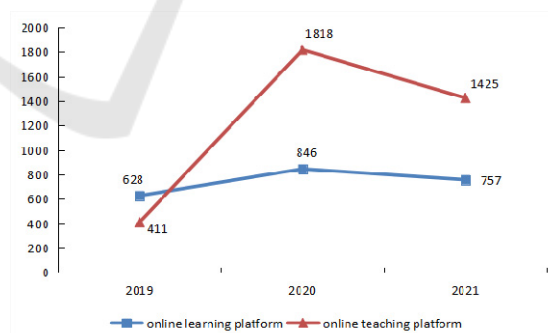


Figure 1 The number of related papers in CNKI from 2019 to 2021

The current Chinese research on the online learning platforms can be summarized from the following three categories:

One is the online course platforms for real-time teaching in the form of live broadcast. Representatives of this type are Tencent Meeting, ZOOM and Ding Talk. In view of the above several

live broadcast as the main form of online education platform, in the specific teaching, many scholars have put forward their own thoughts on teaching practice and reform. Du (2021) provides some suggestions on online higher mathematics learning based on Tencent conference from three aspects: teaching organization, teaching resources and teaching implementation. For MBBS production teaching, Yang and Meng (2021) proposed to combine Tencent conference with flipped classroom, and found that this teaching model helps to improve the learning performance of MBBS students in all aspects. Wang et.al (2021) designed the flipped classroom teaching mode of SPOC+ live broadcast by combining nail with MOOC of Chinese universities, and achieved good results in teaching practice. Li et.al (2021) adopted the teaching mode of SPOC teaching and live broadcast of answering questions after class in engineering chemistry class. It can be found that live online learning platform is used more frequently, especially during the COVID-19 epidemic, teachers actively explore the integration of live broadcast platform and online education in order to maintain the normal order of education and teaching. In the related research, more live broadcast platforms and MOOC are used to form a flipped classroom, so as to obtain better learning and teaching results.

The second is online learning platforms with MOOC as the main form of high-quality resource sharing. The representatives of this type are Chinese University MOOC, Superstar Learning APP, and Rain Classroom and so on. The research on MOOC platform mainly focuses on the combination of MOOC and traditional face to face classroom, the reform and improvement of MOOC teaching design and the promotion strategy of MOOC platform interaction. Starting from the teaching aspect, Yu et.al (2021) have done some research on the teaching mode of the combination of online and offline courses. Wang (2021), Dong (2021) and Xu (2021) all combine Rain Classroom as the main online learning environment with traditional offline courses to explore hybrid applications in different disciplines. This kind of MOOC online learning platform is more likely to be combined with the traditional classroom for blended learning or teaching.

The third is online learning platforms based on APP. The representatives of this type are Xueersi online school, GOTU Classroom and Ape counseling and so on. With regard to this type of platforms, the search results on CNKI are mostly about its enrollment and business model, as well as thinking about the popularity of online tutoring

APP. Taking learning and thinking as an example, Liang (2020) analyzed the problems existing in the marketing strategy of the learning and thinking online learning platform, and put forward some suggestions. In addition, scholars such as Wu (2017) and Hu (2016) have thought about the learning nature of online education APP, and analyzed whether platforms such as Xueersi online school are really "cultivating students' interest" as advertised, or selling parents' anxiety and increasing students' burden. It can be found that there is relatively little discussion about online education and teaching. This type of online learning platform is more like a paid MOOC course, the audience is biased towards primary and secondary school groups, and the curriculum content is more targeted.

3.2 Which Aspects are the Current Researches on Online Learning Platforms in Abroad?

There is a lot of talk about the use and effect of online learning platforms in abroad. Abroad online teaching platforms are mainly divided into two types. One is the platforms that belongs to the learning management system (LMS), such as Blackboard and Moodle. The other is platforms belonging to social learning networks (SLN), such as Edmodo, WhatsApp and Microsoft teams. The change in the number of articles about LMS and SLN in Web of Science from 2019 to 2021 is shown in Figure 2. It can be found that, compared with 2019, the research on these two types of online learning platforms has increased significantly in 2020 and 2021.

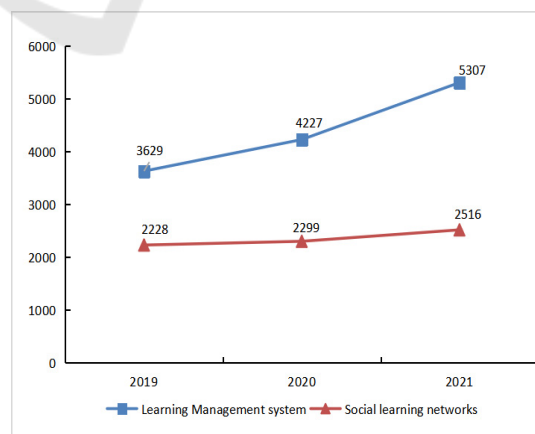


Figure 2 The number of related papers in Web of Science from 2019 to 2021.

Learning Management system (LMS) platform,

which is specially used for teaching, has a strong pertinence. The use of LMS can help students arrange web-based learning tasks and provide electronic classrooms for synchronous and asynchronous learning. Abroad scholars pay more attention to the effect of use. For example, in distance learning during the epidemic, Evgeny et.al (2021) conducted a survey of freshmen to seniors who had quarantined themselves during the epidemic and found that the Moodle platform had become an effective learning tool during the epidemic, and the value of Moodle as a means of participating in interactive communication and learning in the educational process of learners has increased.

In addition, this kind of LMS has a large number of data of students' learning, and students' progress in all educational activities can be observed through the online learning tasks assigned in the classroom. For the number of clicks on online courses, to a certain extent, students' learning performance can also be predicted. Taking Moodle as an example, Rianne et.al (2016) compared 17 blended learning courses using Moodle, the representative software of LMS courses. The results show that although the differences between courses are large and more detailed theoretical reasoning is needed to obtain generalized results. However, learning analysis can still be used to analyze individual courses, to predict student performance and to evaluate curriculum design. Studies by Nurassyl et.al (2020) have proved that Moodle is an advanced strategic solution for planning, implementing and managing learning activities, while the use of Moodle helps to improve students' ability, motivation and learning satisfaction. This type of online communication is very attractive for both students and teachers.

Social learning network (SLN) is to apply all kinds of social media software which is not originally aim to used for education in online education to attract students' interest, promote communication, and gradually develop new usage in education and teaching. In this part, scholars pay more attention to the feasibility and teaching effect of using it in online learning and face to face teaching. In terms of feasibility, some scholars believe that the use of some emerging social media in online learning is a formal innovation, and there are many benefits. Take Edmodo as an example, Gürhan (2017) analyzes the use of Edmodo software in the classroom from an academic point of view. Through a questionnaire survey of 50 experts and scholars, it is found that although there are some drawbacks in the use of social software, Edmodo software is different from the traditional

social software (SNS) and rarely has the characteristics of disturbing the classroom. At the same time, Edmodo software supports the organization and discipline in learning, and can give students timely feedback and free communication. Therefore, as a form of curriculum innovation, future experts will still use Edmodo software for teaching activities in the course. In terms of teaching effect, take WhatsApp as an example. Vusumuzi et.al (2020) used WhatsApp as the only teaching platform during the epidemic, and 200 students were selected for questionnaire survey. The results show that the students' attitude, behavior intention and platform usefulness of using WhatsApp are higher, indicating that the students have a higher degree of use. Schools will easily integrate the platform to enhance or subvert traditional face-to-face courses. WhatsApp can support learning in the 21st century through autonomous, collaborative and learner-centered education.

4 CONCLUSION

This study makes a systematic literature review of the research on online learning platforms at China and abroad. To sum up, the types of online learning platforms in China are mainly divided into live broadcast form, MOOC form and APP form of online teaching platforms. Among them, scholars pay more attention to teaching practice, teaching design and teaching reform. Abroad online learning platforms are mainly divided into learning management system (LMS) and social learning network (SLN). Among them, scholars pay more attention to the use effect, the prediction of students' learning behavior and the feasibility of the application of social media in teaching. It can be found that there are relatively rich types of research on online education platforms abroad, including not only professional education platform research, but also focus on social media, which greatly improves the possibility of learning platform. China online learning platforms are all based on special web sites or software. If you want to interact and communicate, you must download the software or log on to a specific web site. The complexity of the login procedure and the convenience of the application have a certain impact on students' participation, completion and satisfaction in online learning. Therefore, the future research on online learning platforms can pay more attention to the development and use of social media. Through

systematic carding, this study can help researchers understand the types and research status of online learning platforms, help teachers to correctly choose a suitable online teaching platform, and make rational use of the functions of the platform to achieve better teaching results. This paper also has some limitations, because the choice of literature retrieval websites is limited, and the research results are only produced by a few selected keywords, so some articles may not be included. It is hoped that in the future research, more reference papers could be included to get a more comprehensive picture. Online learning is developing fast worldwide, especially after the appearance of COVID-19. Therefore it is hoped that the comparison of online learning research between China and abroad in this paper could help to reveal the advantages and disadvantages of online learning development in different countries. More importantly, this paper could provide a reference for the research and reform direction in the future.

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