

# Countermeasures for Integrating MOOCs into Chinese Higher Education

Fangfeifei Huang

University of Southampton, Southampton, SO17 1BJ, United Kingdom

**Abstract.** The integration of MOOCs into Chinese higher education has led to significant impacts on traditional educational models. However, theoretical research on MOOCs in China remains extremely deficient, as most studies are introductory and descriptive texts and reports. Students born after 1995, who form the majority of university populations, have independent thought processes, which makes it difficult to continue using the traditional higher education model to meet their learning needs, thus increasing their interest in MOOCs. MOOCs enable prestigious universities and colleges to compete globally, creating a new dynamic in higher education. MOOCs' popularity could result in major, even subversive, changes to China's higher education system. Therefore, this study focuses on how traditional higher education in China is being adjusted and restructured in response to MOOCs. The study promotes change in the organization of teaching and learning in China, through approaches like flipped classrooms, which combine online learning with face-to-face classroom interaction. Moreover, MOOCs allow for the "use of big data in education," enabling enhanced tracking of student behaviors and improving teaching feedback. Additionally, sharing high-quality educational resources is crucial for improving the quality of education, which MOOCs facilitate through technological advancements.

**Keywords:** MOOCs (Massive Open Online Courses); Chinese Higher Education; Integration; Traditional Education Models.

## 1. Introduction

### 1.1. Background on the need for countermeasures to integrate MOOCs into traditional education

MOOCs have penetrated the Chinese higher education system and have a substantial impact on traditional Chinese higher education. Coates et al. (2022) have previously said that there has never been an event in the history of education that has drawn so widespread attention and prompted such rapid response. Nonetheless, theoretical research on MOOCs in China remains extremely deficient. The bulk of research outputs produced by Chinese and local experts are introductory and descriptive texts and reports. Because conventional Chinese higher education is founded on the concept of indoctrination, most students can only accept it passively (Wang, 2020). Since students born after 1995 now make up the majority of those enrolled in Chinese domestic universities and most of them have independent personalities and thought processes, it is difficult to continue using the traditional higher education model to meet the fundamental learning requirements. As a result, they have a substantial interest in MOOCs. Under the MOOC trend, the world's most prestigious universities and colleges compete on the same platform as renowned instructors and the most prestigious courses. What reaction will China's higher education have? Given the tremendous momentum of MOOCs in China's higher education sector, Kolowich (2013) is even more skeptical: if students can readily access a free university course, why would they be willing to pay costly tuition fees to conventional educational institutions? In this regard, Zheng et al. (2018) concluded that the operating mode of this massive open online course, which was introduced in the United States, has fundamentally begun to touch the foundation of traditional higher education, which will eventually cause universities to be reorganized and form a brand-new university structure. The popularity of massive open online courses shows that China's traditional higher education system may undergo major, even subversive, changes (Rhoads et al., 2015). To better foster innovation and development in China's higher

education, this study argues that we should pay attention to the emergence and growth of MOOCs in China, and then investigate how the conventional higher education paradigm in China is being adjusted and restructured in response to the introduction of MOOCs in the country.

## **1.2. Purpose and Research Question**

Promoting change in the organization of teaching and learning in China. Education in China is notorious for its indoctrination-style teaching, in which the instructor spends the majority of class time lecturing and only a few pupils in the front row are permitted to answer, with minimal contact between students and between students and professors (Liu, 2020). Considered the ideal option to mix MOOCs with regular colleges, flipped classrooms make use of online teaching and learning while boosting face-to-face classroom interaction and enabling students' knowledge development (Kaplan and Haenlein, 2016). MOOCs are unlikely to revolutionize higher education, but the exploration of new methods to combine MOOCs with conventional classrooms will lead to changes in the organization of education in China.

Promoting change in the way universities are managed. The rise of MOOCs enables the use of big data in the area of education. Ideally, the learning behavior of each student in each module of a MOOC course will be automatically recorded (Maldonado et al., 2018), including the distribution of learners by region, age, gender, etc., the selection of courses, when learners have viewed videos, the length of time they have viewed, when they have completed assignments and exams, etc. When the number of students exceeds 10,000 or perhaps 100,000, data connected to online student learning will be compiled into learning big data (Hou et al., 2018). By using certain data analysis techniques, instructors or technologists might unearth material that is unavailable in a conventional classroom. This Big Data helps instructors get fast feedback on their teaching and learning and allows administrators to manage vast populations of students (Daniel, 2015).

Promoting the sharing of quality educational resources and improving the quality of higher education. Even in industrialized countries, there are insufficient teaching resources to meet the demand for higher education among school-aged people (Gulati, 2008). Waldrop (2013) views that, excluding adults pursuing additional education and vocational training, the development of at least four institutions with a weekly enrolment of 30,000 students would be sufficient to ensure that pupils who reach the age of eligibility for higher education in 2025 have access to such programs. It is now vital and inevitable to share high-quality educational resources (Caswell et al., 2008). According to Piedra et al., (2015), resources for high-quality education throughout the globe are underutilized. The marginal cost of resource sharing via technology solutions is almost negligible, and MOOCs will play a big role in resource deployment (Huang, 2015). The rapid expansion of audio and video technologies, the maturation of network infrastructure, Web 2.0, and the increasing use of cloud technology all provide potential technical support for the marketing of MOOCs (Kaur and Singh, 2015). Sharing of high-quality instructional resources in Chinese higher education will be possible if MOOCs' reform possibilities are used. The objective of this article is to provide methods and approaches for incorporating MOOCs into Chinese higher education. Thus, how should the Chinese higher education system respond to MOOCs is the research topic for this literature review.

## **2. literature review**

### **2.1. Current status of MOOCs in Chinese higher education**

Chinese academics often recognize three types of MOOCs: cMOOC, xMOOC, and tMOOC. According to Wang et al. (2016), the primary features of cMOOCs include associationism, knowledge construction, teacher-student collaboration, dispersed multi-space interaction, a focus on creativity, synchrony, empathy, and learner self-regulation. According to Gaebel (2014), xMOOCs are superior to cMOOCs for the dissemination of knowledge. According to Zhao (2018), xMOOC emphasizes behaviorism more and focuses on the dissemination and replication of knowledge. Chen (2014) argues that while xMOOC is an extended breakthrough of teaching models within the traditional

higher education system, such as Coursera and edX, tMOOC is based on didactic constructivist theory, focuses on the dynamic generation of learning resources, aims to acquire practical skills through the completion of multiple tasks, and represents a transcendence and innovation of traditional higher education. cMOOCs and xMOOCs, according to Ebben and Murphy (2014), are the two key lines in the development and expansion of MOOCs.

## **2.2. New features of MOOC in comparison with Chinese higher education**

Even while the creation of MOOCs is founded on Chinese higher education principles, systems, and conventional educational technology, it yet has its unique qualities. Jansen and Schuwer (2015) claim that equality is a new characteristic of the MOOC based on values and that the two-way option of MOOC learning reflects the equality of the MOOC. In conventional education, the position of the instructor and student in terms of learning and comprehension is uneven (Pica, 1987). MOOCs provide a multitude of high-quality, free online courses, embodying the new concept and values of equality before knowledge and the freedom to select education for everyone (Dron and Anderson, 2014). The only approach for professors to get more students into a MOOC is to polish their MOOC and their team to attract more learners, to have students to educate, and to accomplish the goal of teaching (De Freitas et al., 2015). In addition, students may pick their MOOCs and engage in conversations based on their interests, goals, and objectives, which demonstrates that MOOCs respect students' autonomy to some level and promote equality (Veletsianos et al., 2015). The new characteristic of MOOC based on conventional educational technology is intended to be platform-based, and MOOC is conducted with the assistance of network platform operators, resulting in a broader scope, broader field, and greater scale than traditional classroom and online video courses (Zhang, 2018). Although resources are shared socially, conventional open educational resources are different, and instructors and students have explicit ownership rights to a variety of educational materials (Yuan et al., 2008). MOOCs establish a non-differentiated platform that allows students the opportunity to connect with master lecturers on a global scale while also enabling them to study any subject they choose (Wu et al., 2019).

## **2.3. Advanced experience with MOOC incorporation in UK higher education**

The university intends to construct a professional faculty by establishing a robust MOOC teaching team to guarantee the efficient implementation of teaching and learning, with a clear division of labor and collaborative operation between professors, teaching assistants, course administrators, and technical personnel (Ferguson and Sharples, 2014). University MOOC teachers must have solid expertise in their respective fields, a lot of classroom experience, great online teaching approaches, and a high degree of professionalism (Doo et al., 2020). Universities encourage MOOC instructors to actively shift their duties, embrace a learner-centered pedagogy, and actively promote students' learning in this context (Joseph and Nath, 2013).

In MOOC teaching at universities, a systematic design of teaching aims, teaching objectives, instructional content, and support conditions is employed to fulfill the different learning requirements of students and to enable the smooth implementation of teaching and learning (Bayne and Ross, 2014). Teachers assume the role of tutors throughout the MOOC teaching process, allowing students to fully use their initiative via solo or group activities and independent learning (Ross et al., 2014). In MOOC instruction, the University places a heavy emphasis on teacher-student and student-student interaction, where professors convey content to students during this social contact and get peer support during this interaction (Hamid et al., 2015). To rigorously assure the quality of teaching and learning, the university's MOOC system provides a variety of assessment methods for teaching and learning. Assignments, oral defenses, examinations, and participation in events are utilized to evaluate the holistic learning of students and ensure that they are learning effectively. Formative and summative assessments are used to monitor student's learning throughout the learning process; computer-based assessments, peer assessments, and instructor assessments are used to analyze and monitor students'

learning from a variety of viewpoints (Davis et al., 2014). Evaluating the learning of students from a more holistic viewpoint gives some guarantee that the learning will be successful.

The government, outside organizations, and institutions themselves give credible assurances for the growth of MOOCs in terms of instruction and learning. The UK government gives MOOCs in higher education a high priority and provides guarantees in the areas of infrastructure development, regulation, funding, and course offerings (Weller, 2014). From a macro viewpoint, the UK government has strengthened university autonomy and provides guidance and assurances for the development of MOOCs at UK institutions (Hayes, 2015). In addition, social organizations in the United Kingdom support the expansion of MOOCs at universities in the areas of funding, course materials, technology, research, and quality assurance (Woodfield, 2018). Social organizations play a crucial role in the expansion of MOOCs at UK universities and are highly involved in this development. Moreover, universities promote the expansion of MOOCs at their institutions largely via faculty development, finance, technological assistance, research, and quality assurance (Brown et al., 2015). Furthermore, the university is the driving force behind the MOOC system and actively promotes its micro-level deployment inside the higher education system (Sandeen, 2013).

## **2.4. China's problems with the MOOC teaching model**

If MOOCs in Chinese universities just alter the teaching paradigm formally at a time when MOOCs are giving Chinese higher education new influence, they are unlikely to be very effective. According to Huang et al. (2018), the teaching design concept for massive open online courses at Chinese schools is antiquated, and the majority of MOOC courses mirror the framework of the traditional classroom system without a systematic teaching design. Learners' interest in online study, their ability for autonomous learning, their involvement in the learning process, and their completion rate have all dropped because of MOOC instructors' limited capacity to organize the courses (Wang et al., 2015). The current MOOC teaching methods used in Chinese universities are singular and include minimal teacher-student interaction, which is inadequate to suit students' diverse learning experiences (Meng, 2014). Yuan and Liu (2014) Chinese colleges have not made adaptations that are acceptable for China's national conditions; rather, they have blindly replicated MOOC teaching approaches from other countries when developing MOOCs.

### **2.4.1. Problems related to teachers and students**

On the one hand, MOOCs place more demands on instructors in general. The first is that when the MOOC flipped classroom concept is used to teach in Chinese universities, the classroom time is more for teachers to answer students' questions and for students to discuss with one another, so teachers must be knowledgeable in their fields. Teachers should also carefully analyze each student's psychological and mental characteristics (Zhang, 2016). MOOC improves the effectiveness of teacher assessment and teaching. Conventional evaluation feedback entails teachers evaluating students' classroom behavior, class attendance, and final examinations and assessments (Carless, 2015). The MOOC platform provides a real-time feedback system that allows professors to engage with students through videos or emails, in addition to utilizing platform data to assess how many students clicked on each lesson and whether they frequently skimmed or skipped each point (Sonwalkar, 2013) This considerably increases the teacher's ability to assess students objectively based on typical dynamic data, as well as to quickly reflect on and make improvements depending on student feedback on critical ideas and difficult issues.

However, according to Zhai and Yuan (2014), the majority of MOOC courses in Chinese universities are developed by teachers, as there are no specific personnel for developing MOOC courses. Professors at Chinese institutions are influenced by the standard teaching approach, and some of these professors have not yet altered their traditional positions as unilateral knowledge providers. In these schools, the concept of student-centered teaching is still in its infancy (Tsegay, 2015). In terms of teaching abilities, Trehan et al. (2017) believe that Chinese university MOOC teachers must improve their information literacy, namely their ability to execute online education.

### **2.4.2. Problems related to students**

MOOCs have the greatest impact on students in two major areas: learning concepts and learning processes. It has assisted students in developing a knowledge of active learning. Due to the historical dominance of the one-way educational paradigm in China, students in higher education have formed a vision of learning that entails waiting passively for professors to transfer knowledge. Since MOOCs include a plethora of course materials, are supported by the well-known school effect (Bonk and Lee, 2017), have brief class hours, and contain fascinating content, they may assist students in developing their notions of active learning. Second, it facilitates the development of effective learning techniques and disciplined study habits. The level and ability for self-study of Chinese university students differs somewhat from that of their Western counterparts. In addition to productivity and political and economic concerns, the mastering of efficient learning habits and processes by students is essential in higher education. When the MOOC platform is included in the higher education curriculum, students' learning methodologies will emphasize more pre-course research and self-study, as well as their ability to absorb and integrate knowledge (Pursel et al., 2016). The MOOC is thus useful for kindling a passion for learning in students, fostering the mastery of pre-study and self-learning approaches, and influencing sustainable learning habits and lifelong learning.

## **3. Conclusion & Discussion**

### **3.1. To achieve educational equity, there must be a widespread push for digitalization**

First, a framework for investing in and ensuring a balanced digitalization of higher education. In addition to expanding general investment in higher education information platforms, the deployment of MOOCs should prioritize information-based financing and policy for remote campuses. If necessary, the government may make specialized funds and equipment investments to persuade firms to migrate to these destitute and remote areas, as well as begin collaborating with institutions to develop MOOC platforms (Bai, 2019). In addition, a long-term guaranteed mechanism is required, along with the oversight and assistance of regional education administration departments, to provide universities in the region with specific recognition and incentives to promote the long-term and efficient development of regional universities. Specifically, it should expand the participation of social institutions and increase government aid (Hollands and Tirthali, 2014). To build a legal basis for the expansion of university MOOCs, the Chinese government must first devise a national MOOC development strategy. Second, the Chinese government must provide particular funds to promote universities' development of MOOCs. Additionally, the Ministry of Education should create universal criteria for MOOC course quality and expand control of MOOC teaching quality at the university level. To create an optimal social climate for the expansion of MOOCs in Chinese institutions, the Chinese government must increase its service efforts. For Chinese universities to actively contribute to the development of MOOCs, universities must expand their engagement with for-profit and non-profit social organizations. Moreover, investment businesses may participate in the creation of university MOOC platforms and provide funding for MOOCs delivered by Chinese institutions. Second, strengthen the establishment of network platform standards. To provide the necessary conditions for MOOC development at Chinese universities, the Chinese government should support the development of network infrastructure and improve the quality of network services (Chen et al., 2021). MOOCs cannot be separated from the network environment; thus, the design and implementation of relevant information technology standards are also essential to enable the balanced and healthy expansion of higher education. Platform networks, MOOC application standards, and even information technology standards for professor teams and teaching assistants should be firmly established (Viberg et al., 2019). Thirdly, the primary purpose is to enhance the skills of teachers in less advanced disciplines of higher education. For MOOCs to be able to provide equal educational opportunities, it is also crucial to improve the quality of college and university instructors in less-developed regions of higher education (Zheng et al., 2015). By asking university faculty members from regions with more advanced MOOC development to explain and promote MOOC technology

to faculty members in regions with less progressed higher education. Teachers are encouraged and supported in forming professional teams to conduct in-depth seminars, learn from one another, raise awareness of the application of science and technology, and guarantee a high level of teacher teams by focusing on educating MOOC elites to lead MOOC production teams. Specifically, assembling a competent teaching team should be the first step in teacher-team development. A formidable curriculum teaching team should be assembled, with people proficient in curriculum administration, organization, creation, evaluation, and implementation. This group of exceptional administrators, instructors, teaching assistants, and technical personnel should be chosen and trained to ensure the high quality of the curriculum and instruction. In addition, instructors of MOOCs must be well-versed in educational methodologies, psychology, information technology, and the topic at hand. It is essential to strengthen the screening and assessment of the professionalism of teaching assistants in particular. Teachers must improve their instructional skills. Chinese universities may rely on teacher development centers to promote the professional development of MOOC instructors and enhance their ability for instructional design, course organization, network technology utilization, social engagement, logical assessment of teaching, etc. MOOC instructors must adopt a student-centered pedagogical approach. To achieve this, Chinese universities should improve the training of MOOC instructors, encourage the revision of their pedagogical approaches, adopt the "learner-centered" teaching paradigm in its entirety, provide organized services and support for students learning, and ensure that students have a positive learning experience.

### **3.2. Effectively fostering the localisation of MOOCs**

Knowledge of cooperation and engagement, network technological proficiency, and the ability for independent study are all rather low among Chinese university students (Li et al., 2015). In order to better serve Chinese university students who have been modeled by conventional tests and evaluations, Chinese MOOCs should include campus and local university realities. In order to develop a local platform, course value transfer should not depend merely on duplicating and translating overseas MOOC courses; rather, it should take into account the curriculum and knowledge system habits that domestic students have been exposed to. Second, it is essential to include local culture and take a pragmatic approach. It is vital to understand how and why local Chinese culture and traditional values must be included in the MOOC course. It is also essential to bear in mind the traditional Chinese cultural elements that the MOOC course must reflect.

### **3.3. Ensuring MOOCs maintain their educational function**

First, determine the location of MOOCs at Chinese universities. MOOC is a tool for enhancing the quality of higher education, promoting the transformation of the higher education system, and contributing to the realization of educational fairness and modernity (Billington and Fronmueller, 2013). However, MOOCs must fulfill the essential aim of education within the educational system and are not the exclusive objective of Chinese institution transformation (Salmi, 2017). Second, it is essential to have an effective long-term growth strategy for MOOCs. As a mainstream trend in higher education, MOOCs are currently being utilized in tandem with traditional university courses. Particularly, course-providing organizations may directly contribute to the development of university MOOC courses, providing institutions with access to resources of the highest quality. Chinese universities and technology companies may work together in the domain of MOOC technology to offer technical support for the growth of university MOOCs. In addition, research organizations may use theoretical research to facilitate the development of MOOCs in Chinese institutions. To enhance the quality of MOOC instruction in universities, assessment organizations, and academic institutions may combine to provide a systematic review of MOOC development in Chinese universities. Third, enhance the micro implementation of universities. To ensure the steady expansion of MOOC building, Chinese institutions must maximize their dynamic position as the MOOC creation's linchpin. The newest wave of higher education changes, led by MOOCs, is set to commence (Yanmei, 2015). If MOOC is positioned effectively, and MOOC development is ensured in a comprehensive and localized manner, Chinese higher education will certainly reach new heights.

## References

- [1] Alessio, H.M., Malay, N., Maurer, K., Bailer, A.J. and Rubin, B. (2018) 'Interaction of proctoring and student major on online test performance', *International Review of Research in Open and Distributed Learning*, 19(5).
- [2] Alexandron, G., Yoo, L.Y., RUIPÉREZ-VALIENTE, J.A., Lee, S. and Pritchard, D.E. (2019) 'Are MOOC learning analytics results trustworthy? With fake learners, they might not be!', *International journal of artificial intelligence in education*, 29, pp.484-506.
- [3] Bai, Y. X. (2019) 'Trends in STEM Education Innovation in the U.S.: Access to Equitable and High-Quality Learning Experiences. *Higher Engineering Education Research*, 6.
- [4] Bayne, S. and Ross, J. (2014) 'MOOC pedagogy', In *Massive open online courses* (pp. 33-55). Routledge.
- [5] Billington, P.J. and Fronmueller, M.P. (2013) 'MOOCs and the future of higher education', *Journal of Higher Education Theory and Practice*, 13(3/4), pp.36-43.
- [6] Bonk, C.J. and Lee, M.M. (2017) 'Motivations, achievements, and challenges of self-directed informal learners in open educational environments and MOOCs', *Journal of Learning for Development*, 4(1), pp.36-57.
- [7] Borrella, I., Caballero-Caballero, S. and Ponce-Cueto, E. (2019) 'Predict and intervene: Addressing the dropout problem in a MOOC-based program', In *Proceedings of the Sixth (2019) ACM Conference on Learning@ Scale* (pp. 1-9).
- [8] Bralić, A. and Divjak, B. (2016) 'Use of MOOCs in traditional classroom: blended learning approach', In *EDEN Conference Proceedings* (No. 2, pp. 34-43).
- [9] Bralić, A. and Divjak, B. (2018) 'Integrating MOOCs in traditionally taught courses: achieving learning outcomes with blended learning', *International journal of educational technology in higher education*, 15, pp.1-16.
- [10] Brown, M., Costello, E., Donlon, E. and Giolla-Mhichil, M.N. (2015) 'A strategic response to MOOCs: How one European university is approaching the challenge', *The International Review of Research in Open and Distributed Learning*, 16(6).
- [11] Carless, D. (2015) 'Exploring learning-oriented assessment processes', *Higher Education*, 69(6), pp.963-976.
- [12] Caswell, T., Henson, S., Jensen, M. and Wiley, D. (2008) 'Open educational resources: Enabling universal education', *International Review of Research in Open and Distributed Learning*, 9(1), pp.1-11.
- [13] Chen, Q. (2014) *Improving Online Learning Experience through Enhanced Interactivity: Supporting Students from China to Participate Effectively in MOOCs*.
- [14] Chen, Y., Hou, A.Y.C. and Huang, L. (2021) 'Development of distance education in Chinese higher education in perspectives of accessibility, quality and equity under COVID-19', *Asian Education and Development Studies*.
- [15] Coates, H., Zhang, Y., Li, M. and Zhong, Z. (2022) 'A turning point for Chinese higher education: Developing hybrid education at Tsinghua University', Routledge.
- [16] Daniel, B. (2015) 'Big Data and analytics in higher education: Opportunities and challenges', *British journal of educational technology*, 46(5), pp.904-920.
- [17] Daniel, J., Vázquez Cano, E. and Gisbert Cervera, M. (2015) 'The future of MOOCs: Adaptive learning or business model?' *International Journal of Educational Technology in Higher Education*, 12(1), pp.64-73.
- [18] Davis, H.C., Dickens, K., Leon Urrutia, M., Sánchez Vera, M.D.M. and White, S. (2014) *MOOCs for Universities and Learners an analysis of motivating factors*.
- [19] De Freitas, S.I., Morgan, J. and Gibson, D. (2015) 'Will MOOCs transform learning and teaching in higher education? Engagement and course retention in online learning provision', *British journal of educational technology*, 46(3), pp.455-471.
- [20] Doo, M.Y., Tang, Y., Bonk, C.J. and Zhu, M. (2020) 'MOOC instructor motivation and career development', *Distance Education*, 41(1), pp.26-47.
- [21] Dron, J. and Anderson, T. (2014) *Teaching crowds: Learning and social media*, Athabasca University Press.
- [22] Ebben, M. and Murphy, J.S. (2014) 'Unpacking MOOC scholarly discourse: A review of nascent MOOC scholarship', *Learning, media and technology*, 39(3), pp.328-345.
- [23] Ferguson, R. and Sharples, M. (2014) 'Innovative pedagogy at massive scale: teaching and learning in MOOCs', In *European conference on technology enhanced learning* (pp. 98-111). Springer, Cham.
- [24] Gaebel, M. (2014) *MOOCs: Massive open online courses* (Vol. 11). Geneva: EUA.
- [25] Gulati, S. (2008) 'Technology-enhanced learning in developing nations: A review', *The International Review of Research in Open and Distributed Learning*, 9(1).
- [26] Hamid, S., Waycott, J., Kurnia, S. and Chang, S. (2015) 'Understanding students' perceptions of the benefits of online social networking use for teaching and learning', *The Internet and higher education*, 26, pp.1-9.

- [27] Hao, Z. (2015) 'An Analysis of Strengthening the Construction of Ideological and Political Work of China's Normal University Students under New Circumstances', *International Journal for Innovation Education and Research*, 3(12), pp.78-83.
- [28] Hayes, S. (2015) MOOCs and quality: A review of the recent literature.
- [29] Hollands, F. and Tirthali, D. (2014) Why do institutions offer MOOCs?
- [30] Hou, Y., Zhou, P., Xu, J. and Wu, D.O. (2018) 'Course recommendation of MOOC with big data support: A contextual online learning approach', In *IEEE INFOCOM 2018-IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS)* (pp. 106-111). IEEE.
- [31] Huang, C.H., Ciou, Y.J., Liu, A.C. and Chang, S.P. (2018) 'Study on Learning Data Analysis of MOOCs on MOOCs Online Courses', *Journal of Computers*, 29(5), pp.222-231.
- [32] Huang, F. (2013) 'Regulation and practice of transnational higher education in China', In *Teaching in transnational higher education* (pp. 23-33). Routledge.
- [33] Huat, C.B. (2015) 'Conceptualizing an East Asian popular culture', In *The Inter-Asia cultural studies reader* (pp. 131-155). Routledge.
- [34] Jansen, D. and Schuwer, R. (2015) 'Institutional MOOC strategies in Europe', *Status Report Based on a Mapping Survey Conducted in October-December 2014*.
- [35] Joseph, A.M. and Nath, B.A. (2013) 'Integration of Massive Open Online Education (MOOC) System with in-Classroom Interaction and Assessment and Accreditation: An extensive report from a pilot study', In *Proceedings of the international conference on e-learning, e-business, enterprise information systems, and e-Government (EEE)* (p. 105). The Steering Committee of The World Congress in Computer Science, Computer Engineering and Applied Computing (WorldComp).
- [36] Kaplan, A.M. and Haenlein, M. (2016) 'Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster', *Business horizons*, 59(4), pp.441-450.
- [37] Kaur, R. and Singh, S. (2015) 'Exploring the benefits of cloud computing paradigm in education sector', *International Journal of Computer Applications*, 115(7).
- [38] Kolowich, S. (2013) 'The professors who make the MOOCs', *The Chronicle of Higher Education*, 18, pp.1-12.
- [39] Li, C. and Zhou, H. (2018) 'Enhancing the efficiency of massive online learning by integrating intelligent analysis into MOOCs with an application to education of sustainability', *Sustainability*, 10(2), p.468.
- [40] Li, J. and Eryong, X. (2020) 'Unveiling the 'logic' of modern university in China: Historical, social and value perspectives', *Educational Philosophy and Theory*, 52(9), pp.986-998.
- [41] Li, Y., Zhang, M., Bonk, C.J. and Guo, Y. (2015) 'Integrating MOOC and Flipped Classroom Practice in a Traditional Undergraduate Course: Students' Experience and Perceptions', *International Journal of Emerging Technologies in Learning*, 10(6).
- [42] Liu, G. (2020) 'New Age MOOCs Teaching in Music Class of College', In *International Conference on Application of Intelligent Systems in Multi-modal Information Analytics* (pp. 605-610). Springer, Cham.
- [43] Long, Y., Zhang, M. and Qiao, W. (2018) 'Survey and analysis of the application of Massive Open Online Courses (MOOCs) in the engineering education in China', In *Online Engineering & Internet of Things* (pp. 840-850). Springer, Cham.
- [44] Maldonado-Mahauad, J., Pérez-Sanagustín, M., Kizilcec, R.F., Morales, N. and Muñoz-Gama, J. (2018) 'Mining theory-based patterns from Big data: Identifying self-regulated learning strategies in Massive Open Online Courses', *Computers in Human Behavior*, 80, pp.179-196.
- [45] Meng, Y. (2022) 'Problems, Causes and Countermeasures of MOOC in the Development of Higher Education in China', In *Proceedings of the 8th International Conference on Frontiers of Educational Technologies* (pp. 87-91).
- [46] Meng, Y. L. (2014) 'The influence of MOOC on Chinese education from the perspective of "MOOC Chinese User Survey"'. *Electronic Education Research*, 35(8), pp.38-43.
- [47] Morris, T.H. (2019) 'Self-directed learning: A fundamental competence in a rapidly changing world', *International Review of Education*, 65(4), pp.633-653.
- [48] Mou, y. L. (2015) 'Thinking about the Chinese value of the University of Applied Sciences', *China Higher Education Research*, 6, pp.73-75.
- [49] Ossiannilsson, E., Altinay, F. and Altinay, Z. (2016) 'MOOCs as change agents to boost innovation in higher education learning arenas', *Education Sciences*, 6(3), p.25.
- [50] Pica, T. (1987) 'Second-language acquisition, social interaction, and the classroom', *Applied linguistics*, 8(1), pp.3-21.
- [51] Piedra, N., Chicaiza, J., López-Vargas, J. and Caro, E.T. (2015) 'Seeking Open Educational Resources to Compose Massive Open Online Courses in Engineering Education an Approach based on Linked Open Data', *J. Univers. Comput. Sci.*, 21(5), pp.679-711.

- [52] Pursel, B.K., Zhang, L., Jablokow, K.W., Choi, G.W. and Velegol, D. (2016) 'Understanding MOOC students: Motivations and behaviours indicative of MOOC completion', *Journal of Computer Assisted Learning*, 32(3), pp.202-217.
- [53] Qu, D., Shevchenko, T. and Yan, X. (2020) 'University curriculum education activities towards circular economy implementation.', *International Journal of Scientific and Technology Research*, 9(5), pp.200-206.
- [54] Ren, L. and Ling, Q.D. (2016) 'The Influence of MOOC on Traditional Classroom Teaching of Chinese Universities', *DEStech Transactions on Social Science, Education and Human Science*.
- [55] Rhoads, R.A. (2015) *MOOCs, high technology, and higher learning*. JHU Press.
- [56] Ross, J., Sinclair, C., Knox, J., Bayne, S. and Macleod, H. (2014) 'Teacher experiences and academic identity: The missing components of MOOC pedagogy', *MERLOT Journal of Online Learning and Teaching*, 10(1), pp.57-69.
- [57] Salmi, J. (2017) 'The tertiary education imperative: Knowledge, skills and values for development', Springer.
- [58] Sandeen, C. (2013) 'Integrating MOOCs into traditional higher education: The emerging "MOOC 3.0" era', *Change: The magazine of higher learning*, 45(6), pp.34-39.
- [59] Sonwalkar, N. (2013) 'The first adaptive MOOC: A case study on pedagogy framework and scalable cloud Architecture—Part I', In *MOOCs forum* (Vol. 1, No. P, pp. 22-29). 140 Huguenot Street, 3rd Floor New Rochelle, NY 10801 USA: Mary Ann Liebert, Inc..
- [60] Tsegay, S.M. (2015) 'Students' experience in student-centered learning at higher education institutions in China: A case study', *EDUCARE*, 7(2).
- [61] Torracco, R.J. (2005) 'Writing integrative literature reviews: Guidelines and examples', *Human resource development review*, 4(3), pp.356-367.
- [62] Torracco, R.J. (2016) 'Writing integrative literature reviews: Using the past and present to explore the future', *Human resource development review*, 15(4), pp.404-428.
- [63] Trehan, S., Sanzgiri, J., Li, C., Wang, R. and Joshi, R. (2017) 'Critical discussions on the massive open online course (MOOC) in India and China', *International Journal of Education and Development using ICT*, 13(2).
- [64] Veletsianos, G., Collier, A. and Schneider, E. (2015) 'Digging deeper into learners' experiences in MOOC s: Participation in social networks outside of MOOC s, notetaking and contexts surrounding content consumption', *British Journal of Educational Technology*, 46(3), pp.570-587.
- [65] Viberg, O., Bälter, O., Hedin, B., Riese, E. and Mavroudi, A. (2019) 'Faculty pedagogical developers as enablers of technology enhanced learning'. *British Journal of Educational Technology*, 50(5), pp.2637-2650.
- [66] Waldrop, M.M. (2013) 'Campus 2.0', *Nature*, 495(7440), p.160.
- [67] Wang, L. (2020) 'Research and practice of reform on college English teaching under the environment of information technology', *Theory and practice in language studies*, 10(4), pp.453-458.
- [68] Wang, W.P., WANG, P. and LI, S.Y. (2016) 'The Dilemma of Current MOOC Development', In 2016 3rd International Conference on Social Science (ICSS 2016).
- [69] Wang, Y. X., Feng, C. and Nie, Y. J. (2015) Analysis and Countermeasures of Problems in MOOC Education in Colleges and Universities in my country. *China Electronic Education*, (6), pp.80-85.
- [70] Weller, M. (2014) 'The battle for open', Ubiquity Press.
- [71] Whittemore, R. and Knafl, K. (2005) 'The integrative review: updated methodology', *Journal of advanced nursing*, 52(5), pp.546-553.
- [72] Woodfield, S. (2018) 'International HE in the UK: leveraging the policy-institution-expert nexus in uncertain times', *Journal of Higher Education Policy and Management*, 40(6), pp.629-647.
- [73] Wu, W.H., Kao, H.Y., Wu, S.H. and Wei, C.W. (2019) 'Development and evaluation of affective domain using student's feedback in entrepreneurial Massive Open Online Courses', *Frontiers in psychology*, 10, p.1109.
- [74] Xu, M. J. and Zhang, H. W. (2014). What kind of teaching ability should teachers in research universities have?. *Journal of Zhejiang University: Humanities and Social Sciences Edition*, 44(2), pp.5-15.
- [75] Yanmei, L.I.U. (2015) 'Chinese higher education reform under the wave of MOOC', *Higher Education of Social Science*, 9(3), pp.23-27.
- [76] Yarime, M., Trencher, G., Mino, T., Scholz, R.W., Olsson, L., Ness, B., Frantzeskaki, N. and Rotmans, J. (2012) 'Establishing sustainability science in higher education institutions: towards an integration of academic development, institutionalization, and stakeholder collaborations', *Sustainability Science*, 7(1), pp.101-113.
- [77] Yuan, L., MacNeill, S. and Kraan, W.G. (2008) *Open Educational Resources-Opportunities and challenges for higher education*.
- [78] Yuan, L. and Powell, S. (2013) 'MOOCs and disruptive innovation: Implications for higher education', *eLearning Papers, In-depth*, 33(2), pp.1-7.

- [79] Yuan, S. H. and Liu, X, (2014) 'Current Situation and Common Problems of MOOC Practice in Chinese Universities--From the MOOC Practice Report of Chinese Universities', *Research on Modern Distance Education*, (4), pp.3-12.
- [80] Zhang, J. (2016) 'Can MOOCs be interesting to students? An experimental investigation from regulatory focus perspective', *Computers & Education*, 95, pp.340-351.
- [81] Zhang, N. (2018) 'Development and Application of an English Network Teaching System Based on MOOC', *International Journal of Emerging Technologies in Learning*, 13(7).
- [82] Zheng, Q., Chen, L. and Burgos, D. (2018) 'Emergence and development of MOOCs', In *The development of MOOCs in China* (pp. 11-24). Springer, Singapore.
- [83] Zhai, X. S. and Yuan, J. (2014) 'Research on the Development Dilemma and Countermeasures of MOOC in my country's Higher Education. *Electronic Education Research*, 35(10), pp.97-102.
- [84] Zhao, Y. (2018) 'MOOC Teaching-A New Teaching Model in the Age of Big Data', In *2018 2nd International Conference on Economic Development and Education Management (ICEDEM 2018)* (pp. 377-380). Atlantis Press.
- [85] Zheng, S., Rosson, M.B., Shih, P.C. and Carroll, J.M. (2015) 'Understanding student motivation, behaviors and perceptions in MOOCs', In *Proceedings of the 18th ACM conference on computer supported cooperative work & social computing* (pp. 1882-1895).