The Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province

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ABSTRACT

The objectives of this research were: (1) to examine components of the effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province; (2) to verify the components of the Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province.

The research was a mixed methodology research. The population includes 54 college leaders and 426 instructors from 20 colleges and universities, with a total number of 480. Using multi-stage random sampling technology, the sample size of 300 university leaders and instructors was determined. The nine key informants were deans of art colleges, deans of academic affairs, directors of basic teaching departments of art colleges and other relevant administrators, and lecturers of relevant majors in art colleges and universities. obtained by purposive sampling method. The instruments used for data collection were semi structured interview, a five-level rating scale questionnaire, and note taking by Focus Group Discussion. Major findings: (1) Strengthen organizational management and standardize the learning management system included four components: build a learning organization in universities, establish a MOOC public education service platform, improve the construction of an evaluation system for MOOC learning performance, establish the construction, evaluation and assessment mechanisms for the improvement of MOOC for fine arts education.(2) Establish and improve the quality assurance system of MOOC education and establish a sound

mechanism for MOOC development included five components: Set up a special MOOC project team , Financial security , mutual course selection and credit recognition , design and implementation and evaluation mechanisms for MOOC development , Innovate the MOOC teaching mode .(3) Organise and carry out MOOC-based education and teaching reforms within the university, and comprehensively integrate education resources integration included five components: settings of teaching institutions, policy suppor, educational management links, educational resources, teaching reform and research. (4) Develop a management system in line with MOOC Features to promote the construction of MOOCs in universities included seven components: the convenience of MOOC learning, the construction of an evaluation system for MOOC learning performance, management support and supervision of MOOCs, the platform's service-oriented functions, online and offline hybrid teaching, MOOC promotion strategy, the fairness of MOOC learning, (5) Optimise Learning Platform Management included four components: infrastructure construction plans, the timeliness of the MOOC platform, eal-time updating of courses andin-depth development, MOOC platform should own style and paradigm, teaching on the platform. (6) Strengthen Platform Education Quality Assurance and promote Platform Education Quality enhancement included four components: a sound quality assurance mechanism for Platform Education, a credit conversion mechanism, and a mechanism for mutual recognition of credits, students' personalised learning management, adapt various functions and features to the learners' way of thinking, a dynamic MOOC teaching quality evaluation system.

Keywords: Massive Open Online Course (MOOC), Effectiveness, Education, Management

1. Introduction

On April 13, 2015, the Ministry of Education issued "Opinions on Strengthening the Application and Management of Online Open Courses in Higher Education" with the number [2015].1 The Opinions were divided into three parts: general requirements, key tasks, and organization and management. The key tasks are: to build a number of high-quality online open courses represented by MOOC, which were integrated with course applications and teaching services; to recognize a number of national high-quality online open courses; to build a public service platform for online open courses; to promote the wide application of online open courses; to standardize the promotion and introduction of online open courses.

In recent years, the construction of MOOC in China has seen a spurt in growth, and their applications have continued to penetrate all walks of life, becoming an important force in

building a lifelong learning society. With the increasing number of universities involved in the development and construction of MOOC, the number of courses was growing rapidly, some new problems have arisen as well, such as duplicate development of courses, some MOOC teams unable to take courses that meet the requirements due to their own insufficient skills, high dropout rates, and so on. Encouraging the development and application of MOOC construction has become a national-level policy, and it was a long process to solve the problems arising from it. The current situation of MOOC construction and application in colleges and universities will be analyze the effectiveness, combined with case studies, and feasible suggestions will be made for the problems that have not been solved yet, in order to provide useful references for research on MOOC construction and application in colleges and universities.

The construction of MOOC was an important way to promote higher education teaching reform in the context of information technology, and it was also a teaching method that adapts to the personalized development of learners. The investigation of the management situation reveals the problems in the implementation and provides suggestions for its continuous improvement. This research investigates the implementation effect of MOOC through a combination of theoretical analysis and empirical investigation.

At present, China's Massive Open Online Course was entered a new stage of comprehensive construction and management. There are many problems in the construction of MOOCs in colleges and universities, leading to major shortcomings in the selection of teaching methods, changes in management modes, and the construction and use of teaching platforms. Analyzing the current situation of MOOC construction and management in colleges and universities can help solve the current problems under the guidance of more perfect policies. Strengthening the management of MOOC construction enables the standardization of various course changes in colleges and universities and promotes the scientific development of course reform.

2. Research questions

1. What are the components of the effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province?

2. What are the verification results of the components of effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province?

3. Research objectives

1. To examine components of the effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province.

2. To verify the components of the Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province.

4. Research method

The research methodology was mixed methodology, including qualitative and quantitative research. There were three processes of research which were research proposal preparation, research procedures, and research report. The research procedures consisted of three steps; (1) qualitative research: The researcher has studied related kinds of literature about the concept, principles, and theories, related research on Massive Open Online Course for Fine Arts Education as well as an in-depth interview with key informants. Key informants consisted of nine key informants from three outstanding universities under Liaoning Province with more than 5 years experience. Purposive sampling methods and semi-structured interviews were used. Data collection was done by the researcher and the collected data was analyzed by Content Analysis. (2) examining Components of Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province; and (3) Verifying Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province. This is a quantitative Research: The researcher used the concepts from step (1) to prepare a questionnaire as an instrument to collect data from samples in order to examine components of concepts of Effectiveness of MOOC for Fine Arts Education in Universities under Liaoning Province. The population consisted of 480 Professors, instructors, and administrators involved in MOOCs in universities under Liaoning Province. They came to 20 colleges and universities of MOOC education and management in Liaoning Province, which were classified according to the scale and professional skills of universities. The researcher determined sample size with Krejcie and Morgan's Table (1970) to determine the sample size, which was increased to 300. The researchers used a three-part questionnaire; Part ONE: Demographic variables (checklist) Part two: Effectiveness of Massive Open Online Course for Fine Arts Education variables (five-point rating scale), Part three: Recommendation (open-ended questionnaire). This tool is developed from the questionnaire developed in step (1) as a questionnaire. The quality of questionnaires was assessed by content validity and reliability. For the content validity, it was checked by five experts and analyzed by Item-Objective Congruence (IOC). The item value was ≥ 0.60. For the reliability, it was analyzed by Cronbach's

Alpha at ≥ 0.90. The questionnaires were sent by online, mail, and researcher. The data of demographic variables were analyzed by descriptive statistics; frequency, and percentage. The variables of MOOC were analyzed by descriptive statistics; mean, Standard Deviation (S.D.). The components of effectiveness for MOOC Management were analyzed to reduce irrelevant variables. Use the Exploratory factor analysis. step (3) Verifying Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province. This is a qualitative Research, The researcher used each component of Effectiveness of MOOC for Fine Arts Education in Universities under Liaoning Province from step (2) to verify Effectiveness by using Connoisseurship with 9 key informants with less than 10 years' experience, They have reasonable experience or certain achievements in MOOC, and their success in MOOC management has been widely recognized. They were professionals with MOOC. Key informants were selected by purposive sampling technique with the above criteria. Checklist concerning four areas; utility, feasibility, propriety, and accuracy. The questionnaires were sent by online, mail, and researcher. The data from Connoisseurship was analyzed by Content Analysis. After the completion of data collection, statistics used to analyze the collected data were frequency and percentage. Procedure for Connoisseurship review and evaluation of data results by nine informants.

5. Research results

1. Result of Data Analysis for Research Objective 1

It was found that overall, the arithmetic mean ($\bar{x}$) of the 76 questions ranged from 3.477 to 4.453, indicating that the respondents had different opinions about the level value (from low to high, while the standard deviation (S.D.) ranged from 0.247 to 0.995, indicating that the respondents had different opinions about the variable. In addition, Bartlett's Test of Sphericity, test statistics testing variables to see if they were related as shown in Table 1.

Table 1 Showed KMO-Meyer-Olkin and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.911
Bartlett's Test of Sphericity	Approx. Chi-Square	32671.329
	df	2850
	Sig.	.000

As ccould be seen from table 1, the KMO test result of the data collected from the research was 0.911. Kaiser and rice studied KMO (Kaiser Meyer Olkin sampling adequacy

measurement) to measure the data applicability of whether factor analysis technology should be used, and concluded that if KMO value≥0.8, factor analysis could be well used in the data set. Therefore, this set of data was suitable for good factor analysis. The relationship between variables was tested by statistical values. Bartlett sphericity test had statistical significance (SIG 0.000 :S 0.05), indicating that there was a correlation coefficient matrix of variables. Therefore, the information obtained was suitable for further factor analysis. Principal component analysis (PCA), orthogonal rotation and varimax rotation extraction factors were used in this stage of analysis. The criteria used to consider factors were as follows: (1) 0.6 or higher was a practically important factor load; (2) According to Kaiser standard, the eigenvalue was greater than 1; (3) There were more than 3 components (Hatcher). When considering the above criteria, the number of components and variable variance were shown in table 2.

Table 2 shows the effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province's components

Order	Components	Number of variables	Factor loadings
1	Components 1	12	0.605-0.781
2	Components 2	7	0.641-0.844
3	Components 3	8	0.69-0.854
4	Components 4	4	0.732-0.791
5	Components 5	6	0.608-0.672
6	Components 6	6	0.612-0.742
	Total	**43**	**0.605-0.854**

Researcher based on the Exploratory Factor Analysis, according to the table 2, it was explained that the effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province. Consisted of 6 components: Organization and Learning Management System of MOOC education, Quality Management of MOOC Education, MOOC Education Resource Management, Features of MOOC Education Management, Management of MOOC education platform, MOOC platform education quality management.

2. Result of Data Analysis for Research Objective 2

The researcher used a mixed online and offline model and invited nine key informations, for verification, the components of the Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province were adjusted to: Organization and

learning management system; Education quality assurance; Education resource integration; MOOC features management; Learning platform management; Platform education quality assurance.

6. Conclusion / Discussion

1. Conclusion

From the research objectives, major findings were revealed as follows: (1) The Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province has six components. (2) To verify the components of the Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province. The nine key informants were unanimous in their opinions and considered that all six components met the criteria in terms of utility, feasibility, proprietary, and accuracy. The names of the dimensions were also changed and refined.

2. Discussion

(1) Discussion about major findings of the Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province.

There were six components of the Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province. Namely Organization and learning management system of MOOC education; Quality Management of MOOC Education; MOOC Education Resource Management; Features of MOOC Education Management; Management of MOOC education platform; MOOC platform education quality management. these six components reflected the effectiveness of MOOC for fine arts education comprehensively in terms of management system, quality management, resource management, characteristic management, platform management, etc. The division was meticulous and each component has more profound discussions and views in its own field, which was conducive to the establishment of an all-round and multi-dimensional MOOC for fine arts education management system, and played an important role in improving the quality and level of MOOC education. In addition, the findings of this research were in line with Sangeeta Trehan, Janesh Sanzgiri and Chenxi Li, Rongsheng Wang Rakesh Mohan Joshi (2017:141-165), Mingzhuo Liu, Shenghua Zha, & Wu He (2019:621-630) have the same research direction. The findings were that to improve the quality of MOOC education and build an effective MOOC for fine arts education, the issues of MOOC design, teaching, delivery, and accreditation need to be improved. Miller, T. (2010:612-701)found some information and social media literacies, capabilities and behaviours on the part of learners were needed for ‘best

outcomes' with MOOCs. "the learners were needed capabilities and behaviours such as information processing, working with online tools, managing one's digital identity, relationship building, self-expression, participation, self- direction, way finding and taking responsibility of one's own learning." proposed by Sangeeta Trehan(2017:141-165).Shi, Jinghuan, Liu, Lulu.(2021:1-9) presented it was necessary to go beyond the technical-rational evaluation paradigm, which was mainly based on quantitative indicators, and realize a shift in evaluation perspective. At the same time, T. Oriordan, DE. Millard, JB. Schulz, (2016) also presentsa hierarchical and multidimensional assessment system must be constructed to facilitate accurate learning performance assessment. The focus, research field, research problems and research objectives of this research were consistent with the objectives, problems and conclusions of this research.

(2) Discussion about verify the components of the Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province.

It was found that the components of the effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province were composed of six components: Organization and learning management system; Education quality assurance; Education resource integration; MOOC features management; Learning platform management; Platform education quality assurance. The results of this validation differ slightly from the components of Objective 1, with some components being simplified and some component names being adjusted. The research findings have been reveal as such because a simplified or adapted name can more accurately summarise the meaning of the components and make the name more representative. For example, Organization and Learning Management System of MOOC education was simplified to Organization and learning management system, Simplify Features of MOOC Education Management to MOOC features management; The constituent components of Education quality assurance were more comprehensive than those embodied in Quality Management of MOOC Education, including Education resource integration、Learning platform management and Platform education quality assurance. It can be seen that, the components of the Effectiveness of Massive Open Online Course for Fine Arts Education in Universities under Liaoning Province: Organization and learning management system; Education quality assurance; Education resource integration; MOOC features management; Learning platform management; Platform education quality assurance. These six components provide a comprehensive picture of the components of the effectiveness of MOOC for fine arts education in universities under Liaoning Province. Building an all-round and multi-dimensional MOOC for fine arts education in terms of education quality assurance, education

resource construction and quality improvement plays an important role in improving the quality and level of education. The results were consistent with Zhao Lei (2017), and the research found that building a MOOC for Fine Arts Education should be built in terms of resource utilisation, teaching innovation, establishing a sound quality assurance system, establishing a MOOC public service education platform, and teaching support services. This result was verified and a MOOC for Fine Arts Education was scientifically and comparatively concluded to be feasible. In addition, the results of this research were consistent with Wang Deji, Feng Yingying, Wang Ying (2014:104-111) who explored the effectiveness of MOOC for fine arts education in terms of building the constituent components of the course content, course structure, learning objectives and employment needs should be We should consider the course content, course structure, learning objectives and employment needs, establish a set of systematic and complete MOOC course assessment criteria, and combine with field assessment to ensure the effectiveness of credits. Rodríguez M F, Correa J H, Pérez-Sanagustín M, et al (2017:102-112) explored the effectiveness of MOOC for fine arts education in line with the construction of the constituent components of MOOC for fine arts education, which should be established from aspects such as MOOC pre-school training services A set of systematic, complete and continuously improved MOOC for fine arts education construction in universities. The results of this research were consistent with the findings of Yuan Luqi. (2018) on the pre-school training of MOOC, in addition, from Yuan Luqi. (2018), to improve the effectiveness of MOOC for fine arts education in universities, the MOOC management system, the construction of MOOC courses, the management and supervision of the Learning platform, the evaluation of MOOC, and the management and motivation of teachers all need to be improved. From the research of Jemni, M., Kinshuk & Khribi, M.K. (2016: 269-270), the development of MOOC courses requires the cooperation of all departments, and Learning and Teaching Solutions can provide suggestions for course development. chen Ling. (2019) from the platform of Learning management system, Platform Management, verified the feasibility, practicality and accuracy of its constituent components identified.

7. Recommendations

1. Recommendation for Practical Application.

(1) Strengthen organizational management and standardize the learning management system.

Build a learning organization in universities, innovate course teaching and learning mode through MOOC, and reform teaching management based on big data learning analysis technology. Improve MOOC intellectual property protection mechanism. Establish a MOOC public education service platform, improve the physical facilities and technical environment, and provide MOOC pre-learning training to students and teaching assistants. Improve the construction of an evaluation system for MOOC learning performance, and broaden the channels for students to understand and provide feedback. Establish the construction, evaluation and assessment mechanisms for the improvement of MOOC for fine arts education.

(2) Establish and improve the quality assurance system of MOOC education and establish a sound mechanism for MOOC development.

Set up a special MOOC project team, with sub-management. Financial security in the form of special funding from the university and responsibility for applying to the government for special funding for MOOC production. Strengthen and improve the mechanism for mutual course selection and credit recognition between schools.Establish and improve the design, implementation and evaluation mechanisms for MOOC development. Pay more attention to the course implementation process. In the process of developing and implementing MOOC courses, pay attention to learners' learning needs and increase interaction and teaching interaction. Optimise training programmes and course systems, control the number of courses and reasonably adjust delivery methods. Innovate the MOOC teaching mode, focus on the combination of online and offline, and consider how to achieve a learner-centred interface between MOOC and traditional classroom.

(3) Organise and carry out MOOC-based education and teaching reforms within the university, and comprehensively integrate education resources integration.

Adjust the settings of teaching institutions according to needs, create more teaching information posts and improve the assessment system for students' performance.Policy support from universities was focused on two areas: course funding and achievement awards. Introduce scientific methods of course funding and reward outstanding MOOC and construction teams for their achievements.

Strengthen a series of links such as teacher team building, talent training, teaching support services, performance evaluation and result feedback, including online course quality evaluation standards, teacher team selection and training system, course teaching team building system, course development mechanism, information-based teaching support services, funding mechanism, online education information consulting services and digital learning resources optimization system, intellectual property rights and other observation

indicators.Promote peer review and teaching observation among teachers through training, teaching and research activities, cultivate the concept of information-based teaching and thinking habits, and enhance the consciousness of teaching innovation and participation in teaching reform. To gather and share quality educational resources, improve teachers' teaching standards and the quality of talent training, raise the level of informatization in school education, and conduct research on informatized teaching based on big data. Provide appropriately sized, alternative curriculum resources to meet the individual teaching and learning needs of teachers and students. To carry out teaching reform and teaching research with the help of MOOC and other information-based teaching resources and management platforms, manage the school's educational and teaching affairs, and improve teachers' ability to apply information technology.

(4) Develop a management system in line with MOOC Features to promote the construction of MOOCs in universities.

Enhance the convenience of MOOC learning and create convenient learning conditions based on customer needs, with learners as users. Set up time-based planning and reminders to promote learning efficiency. Increase the timeliness of MOOC operations to improve teaching and operational efficiency. Improve the construction of an evaluation system for MOOC learning performance. According to the evaluation criteria, technical and financial support and rewards will be given to units that make breakthroughs in personalised teaching and independent student learning. Strengthen management support and supervision of MOOCs, introduce policies to encourage and support them, and at the same time, strengthen the management of supervision information technology, use information technology to promote innovation in supervision concepts, realise the process of supervision and high precision, and ensure the comprehensiveness and accuracy of supervision. Tap into the platform's service-oriented functions to provide learners with multi-functional educational services. Enhance the intelligence of the MOOC platform and strengthen the establishment of post-course tracking and evaluation mechanisms. Optimise the platform's course recommendation algorithm, focus on the creation of a participatory learning environment, and help teachers' teaching and research through data mining. Give full play to the advantages of online and offline hybrid teaching. Develop a reasonable MOOC promotion strategy, strengthen the promotion and demonstration of MOOC course learning, reduce the complexity of platform operation, advocate the operation mode of school-enterprise cooperation, and suggest that it be operated by an independent third-party platform operator. Improve the fairness of MOOC learning and promote the construction of a learning society.

(5) Optimise Learning Platform Management

Develop infrastructure construction plans, plan the quantity and quality of facilities, and complete the construction of online teaching infrastructure in phases. Strengthen the construction of virtual interactive intelligent analysis and emotion recognition facilities for virtual classrooms to provide an efficient teaching environment for online teaching. Improve the timeliness of the MOOC platform in order to enhance teaching efficiency. Develop an information management system for online education to integrate education management and teaching management systems. Emphasis on real-time updating of courses and in-depth development based on learners' individual needs. The platform supports meeting the needs of the course and the learning needs of the learners. Establish and optimise the discussion forum of the MOOC to facilitate the establishment of an online learning space for learners, maintain peer "relationships" and increase the depth of learner interaction. Use information technology to present the teaching design and enhance the functionality and effectiveness of the course. The MOOC platform should develop its own style and paradigm, focus on upgrading the teaching management system, and provide universities with the supporting technology and services they need. Schools were encouraged to use the relevant platforms for teaching in accordance with the rules for using learning platforms. Encourage teaching units to develop their own professional teaching platforms according to the characteristics of their specialties, and provide financial support and incentives. Improve the platform resource procurement standards, teaching units to procure teaching resources according to the standards, and encourage teachers to write quality teaching resources and give incentives.

(6) Strengthen Platform Education Quality Assurance and promote Platform Education Quality enhancement.

Establish a sound quality assurance mechanism for Platform Education, a credit conversion mechanism, and a mechanism for mutual recognition of credits between universities of different academic levels. Promote the recognition of online course credits, carry out innovation in the credit management system, optimize the reciprocity of course learning volume and credits, and ensure the quality of credits. Unify MOOC course standards, consider course content, course structure, learning objectives, employment needs and other aspects, and ensure the validity of credits. Pay attention to students' personalised learning management, organise students' online learning rationally and effectively, and ensure that the online Q&A sessions for the courses run smoothly. Inform students to take online exams on time. The MOOC platform needs to make use of technology to adapt various functions and features to the learners' way of thinking in order to improve the learning experience. Establish

mechanisms for students to learn on their own and increase their initiative and motivation to learn. Encourage teaching units to develop a dynamic MOOC teaching quality evaluation system based on market demand and the teaching environment, and urge teaching units to improve education quality evaluation standards.

2. Recommendation for Further Research.

Further research on theories and studies related to MOOC for fine arts education in universities. Improve the questionnaire design and data collection. The valid sample size of this research was 300. In future research, the number and scope of the population sample for the questionnaire will be expanded to make the research more convincing. In future research, increase qualitative research by selecting outstanding universities that have been successful in MOOCs to do interviews to find out what factors contribute to the success of MOOCs, those factors that make MOOC platforms run more successfully, and further study the construction and development of MOOCs. on the basis of the existing research methods and findings, a scientific, rational, systematic and effective MOOC for fine arts education in universities education management system will be constructed, implemented and promoted by applying relevant theories such as effective education and teaching.

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