

Problems and Countermeasures in the Construction of the Evaluation Index System of the Teaching Effect of Online Course in Colleges and Universities

-Reflection based on three-dimensional teaching objectives

Li Chun

CAPITAL NORMAL UNIVERSITY
China

Jiang Meng

CAPITAL NORMAL UNIVERSITY
China

Abstract—Evaluation of teaching effect is an important part of higher education, guiding the continuous improvement of higher education. At present, the construction of online courses in colleges and universities is in full swing. However, there are still some deficiencies in the existing evaluation index system of online courses' teaching effect, which mainly lies in the evaluation of technology and knowledge. From the perspective of the three-dimensional teaching target, online courses in colleges and universities teaching effect evaluation index system should follow the following principles: the principle of combining technical evaluation content and evaluation, the principle of combining the process evaluation and result evaluation, the principle of combining skills assessment and evaluation of humanities, the principle of combining knowledge orientation and thinking orientation. On this basis, an online course evaluation index system of 4 first-level indexes and 15 second-level indexes is put forward.

Keywords—Online courses; Evaluation of teaching effect; Indicator system; Three-dimensional teaching objectives

I. INTRODUCTION

Teaching effect evaluation is an important part of higher education, is the guide of higher education continues to improve. In the Internet era, the construction of online courses has become an important trend in education at home and abroad. Then, compared with traditional classroom teaching, how to evaluate the effect of online course education? Is there any difference between the evaluation objective and indicator system? These problems are gradually highlighted. Under the background that there is no agreement on the evaluation of teaching effect of online courses at present, the research on the evaluation index system of teaching effect has certain theoretical value and practical guiding significance.

II. QUESTION PRESENTATION AND LITERATURE REVIEW

A. The research background

In 1999, MIT initiated the knowledge sharing program at Education Technology Conference, and opened up its education courseware and instructional design, which officially

started a new era of online education. The MOOC movement grew rapidly. China's higher education has also caught up with this wave of world education reform. Since lesson "desire" of the first year of 2012, China's higher education sector has also raised a hot wave of an online course construction, led by universities in educational administration teaching management departments, through policy support, funding, self-help, evaluation guide and encourage college teachers will be in charge of their own courses to "online", become the online courses, in order to in the tide of education reform. For example, the MOOC in Chinese of Peking University, the "Xuetang online" of Tsinghua University, and the "Good university online" of Shanghai Jiaotong University. Meanwhile, the launch of national quality courses and other work is also in full swing. However, the effect of the online course teaching is still an area that has not been studied deeply; especially some problems in online course teaching are also exposed. For example, the online course "Erya general education course" of a college in Fujian province was sold out, not because of how good the course teaching effect was, but because students could buy a package of services through Taobao and get high marks without taking classes [1]. The department of education has begun to pay attention to the evaluation of the teaching effect of online courses. In 2015, the Ministry of Education issued the "Opinions of the Ministry of Education on Strengthening the Application and Management of Online Open Courses construction in Colleges and Universities" to encourage universities to formulate standards for the accreditation of teaching quality of online open courses [2].

B. Literature review and practice review

At present, the effect evaluation of online course education has been explored in the academic circle and the field of practice, with certain achievements. In terms of domestic research, based on the evaluation standard of online teaching platform compiled by Edutools, MOOC platform and typical online teaching platforms at home and abroad are compared and analyzed, emphasizing the immersion, strong interaction and re-experience in the evaluation of teaching effects, which is of pioneering value, but not specific enough[3]. Liu Hehai et al. (2016) proposed the optimization of Edutools evaluation system based on MOOC requirements, including three aspects: learning tool indicators, student participation tool indicators

Chun Li, Associate Professor of the School of Management, Capital Normal University; Meng Jiang, graduate student of the School of Management, Capital Normal University. Corresponding author: Li Tel: 13581786743, E-Mail 13581786743@126.com

Fund: Capital Normal University Construction of Online Course of Public Relations (No. PY201405)

integrated into the whole learning process; support tool indicators, from educators to learners; technical characteristics indicators, data function and resource constructions become the main indicators [4]. Tong Xiaosu, Jia Xiaojun (2017) on the MOOC conducted to explore the construction of a quality evaluation system, are constructed from three aspects including three primary index, 26 secondary MOOC quality evaluation index system, index system of the primary index including course content, teaching design, learning support, secondary indexes including the content description, content objectives, knowledge consistency import visibility, selection of media and interface, navigation, etc [5]. Wang Taotao and Mao Chenlei (2018) from the perspective of learning and analysis technology and data accumulation and screening of online learning behavior, using the multivariate regression analysis method to judge the students online course study effect evaluation of factors, including five evaluation indexes: discussion the total number of posts, total offline learning time, students evaluation, survey the number of curriculum resources, discussion reply post number [6]. In terms of foreign research, online and classroom students were equally satisfied with the course and the instructor using most measures, and student overall performance did not differ. However, online students tended to do better on exams while classroom students demonstrate a greater ability to apply course concepts to a practical setting [7]. Thirty-two working teachers who participated in the 18-week teaching program found that online learning communities demonstrated the interrelationships between online behavior, roles, and learning communities [8]. Yousef et al. (2014) established a set of MOOC design quality assurance standards, including 75 evaluation indicators in two dimensions of teaching and technology. Rosewell et al (2014) established MOOC quality evaluation standards for open universities from both the institutional and curriculum levels [9].

Many universities in China have also established an evaluation system for the teaching effect of online courses. In October 2018, led by Tsinghua University, and by the State Administration of Market Supervision and Management, the National Standardization Management Committee released by GB/T36642-2018 "Information Technology Learning, Education and Training Online Course" national standards, from the course information perfect degree, course construction, maintenance, curriculum design, curriculum participation to evaluate the four main dimensions. Among them, the course design and course participation are highly weighted, accounting for 40% each. The degree of information perfection and course construction and maintenance each account for 10%.

However, there are still some deficiencies in the existing evaluation index system of online course teaching effect in the field of research and practice. First, there are too many comments on the technical level and the network operation of online courses, such as video visibility, click-through rate, download rate, post rate, etc. Second, the understanding of talent training objectives is not comprehensive enough, lack of talent moral, moral emotion, values and so on to shape.

C. Research questions in this paper

At the national education conference on September 10, 2018, President Xi Jinping pointed out that China's education aims to adhere to the development path of socialism with Chinese characteristics education and train socialist builders and successors who are well developed morally, intellectually, physically and aesthetically. This is the general goal of education reform and innovation in China, and the reform of online course teaching in universities should be subject to the general goal of education reform in China. This paper attempts to return to "The Outline of National Medium - and Long-term Education Reform and Development Plan of the Ministry of Education (2010-2020)", and discusses the design of education index system of online courses according to the three-dimensional education objective theory.

III. THE PRINCIPLES OF CONSTRUCTING THE EVALUATION INDEX SYSTEM OF COLLEGE ONLINE COURSE TEACHING EFFECT UNDER THE GOAL OF THREE-DIMENSIONAL TEACHING

The theory of three-dimensional teaching objectives proposes three dimensions that should be achieved in education teaching: Knowledge & skills, Process & steps, emotional attitude & values. Knowledge and skills refer to the knowledge information to be imparted in this course. Process approach objectives mainly include responsive learning environment, communication and experience; the goals of emotional attitude and values include learning interest and consciousness, cognition and construction of learning responsibility, self-construction and orientation of learning significance. From the perspective of the three-dimensional teaching goal, the construction of the online course teaching effect evaluation index system should adhere to the following principles:

A. The principle of combining technology evaluation with content evaluation

For the evaluation of online courses, the technical indicators of online courses should be taken into account, such as the interface friendliness of online courses, network smoothness and navigation convenience, as well as the teaching content design of online courses, and higher index weights should be given to the latter. After all, content design is the core of teaching, and network is only the tool and means of implementation, and the form should be determined by content.

B. The principle of combining process evaluation with result evaluation

The evaluation of students' learning behavior is part of the evaluation of teaching effect. The 3d teaching goal theory emphasizes students' experience of attitude and emotion in learning process. Therefore, online course teaching, like traditional classroom teaching, also needs to pay attention to students' emotional and attitude experience in teaching process. Process evaluation is also an important way to avoid the aforementioned students from buying courses through Taobao. Therefore, the evaluation index system of online courses should include both the evaluation items of students' knowledge mastery and the evaluation items of learning

process, including the interaction between teachers and students and the establishment of the sense of learning team.

C. The principle of combining skill evaluation with human evaluation

According to the theory of three-dimensional teaching objectives, knowledge and skills refer to the knowledge and information to be taught in this course. Skills are the cultivation of students' ability to earn a living and the quality structure of building society. But, as General Secretary Xi Jinping has said, the education must address the fundamental question of what to train and for whom. So, humanities edification appears particularly important. Online courses should not lack the teaching design of moral and humanistic care; of course, the evaluation of its teaching effect also needs to pay attention to the cultivation of students' humanistic quality.

D. The principle of combining knowledge orientation with thinking orientation

As an old saying goes, giving the human by the fish to be inferior gives the human by the fishing. Instilling knowledge to students is far less important than cultivating students' innovative and critical thinking. However, at present, online courses are still taught by teachers, which is not much different from traditional indoctrination teaching, and some of the differences also add some animations. But that's not supposed to be the real difference, and it's not the essence of online courses. The evaluation of the teaching effect of online courses should examine the cultivation of students' innovative thinking and critical thinking.

IV. THE COUNTERMEASURES FOR FURTHER IMPROVING THE EVALUATION INDEX SYSTEM OF ONLINE COURSE TEACHING EFFECT IN COLLEGES AND UNIVERSITIES

Based on the above four principles of evaluating the teaching effect of online courses, the evaluation index system of improving the teaching effect of online courses should be discussed from several aspects.

A. Increase the evaluation of the interactive level of online courses

Online courses should not be static recordings and videos, but more real-time online teaching and teacher-student interaction. Therefore, when designing the evaluation index system of technology, we should not only take into account the viewing of videos, clicking and replying to teaching posts, but also pay attention to the real-time online teaching of teachers, including the interaction frequency between teachers and students and the degree of participation. Students' participation in online courses is part of their performance and one of the data to evaluate the effectiveness of the course.

B. Introduce the observation of humanistic literacy

Humanistic quality is the ultimate goal of education, which is related to what kinds of people are cultivated and for whom. Compared with "exquisite egoism", [9] university education should cultivate students' concern for human destiny, national vision, pattern and feelings. Of course, humanistic literacy is not easy to measure, especially at the level of results, but that does not mean that online courses can be left alone or not tried. In the case that the results cannot be directly measured, the observation can be made from the behavior level of teachers' teaching guidance. The first is that the guidance can have the result of gradual edification and cultivation of humanistic quality. Therefore, online courses should also refer to the requirements of three-dimensional teaching objective theory, and increase the evaluation of teaching effect in terms of learning significance and construction of learning responsibility.

C. Pay attention to the cultivation of students' thinking ability

Different from traditional teaching in imparting knowledge, pure Internet knowledge explosion era, the role of teachers tend to be found and the ability to create knowledge, emphasizing teachers lead the students to use scientific and effective way of thinking, research methods to explore, discover and create new knowledge, and in the process to make the students get the ability of the whole study. In fact, as early as the 19th century in Germany, the famous "Humboldt reform" opened a new chapter in the development of universities, and proposed that "the fundamental principle for universities to establish themselves is to cultivate science in the deepest and broadest sense and make it serve the spirit and morality of the whole nation". [10] The late President of Peking University, Cai Yuanpei, also proposed that "universities are places of profound learning". Therefore, the teaching effect of online courses should be reflected in the shaping of students' critical thinking and innovative thinking.

According to the above discussion, combined with the theory of three-dimensional teaching objectives, this paper suggests that the online teaching evaluation index system should include at least the following indicators (see Table 1).

TABLE I CONSTRUCTION OF ONLINE COURSE EVALUATION INDEX SYSTEM BASED ON THREE-DIMENSIONAL TEACHING OBJECTIVES

Primary indicator	meaning	Secondary indicators	Weights
Technical quality	Online course network technology and basic conditions	User-friendliness	10%
		Navigation convenience	5%
		Structural rationality	5%
		Network compatibility	5%
Knowledge skills	Course teaching content knowledge point	Resource richness	10%
		Course integrity	5%
		Scientificity	5%
		Teaching interest	5%
Teaching process	Interactive learning environment and interaction experience	Teacher-student interaction	15%
		Student interaction	5%
		Click rate	5%
		Replies rate	5%
Humanistic quality	Emotional attitudes and values	Embedding situation	5%
		Integration situation	5%
		Student language behavior tendency	10%

V. RESEARCH PROSPECT

This paper makes a preliminary discussion on the evaluation index system of the teaching effect of online courses. The three-level indicators still need to be further refined, and empirical research has not been carried out. There are some problems in the teaching index system constructed according to the theory of three-dimensional teaching objectives, such as weak testability of some indexes, which will be the next research direction.

- [9] Liu Tiefang, Liu Yanxia. Exquisite egoism syndrome and its transcendence: the restoration of contemporary education to public life[J]. Higher education research,2012,33(12):1-8. (In Chinese)
- [10] [Germany] William von Humboldt, on the internal and external organization of higher learning institutions in Berlin, higher education BBS,1987, no. 1.

REFERENCES

- [1] Zhu Sibe. The online course is not ruined by the evaluation mechanism, contained in "China Education News", July 9, 2015.(In Chinese)
- [2] The official website of the Ministry of Education, <http://old.moe.gov.cn/publicfiles/business/htmlfiles/moe/s7056/201504/186490.html>.
- [3] Han Xibin, Ge Wenshuang, Zhou Qian, Cheng Jiangang. A Comparative Study of MOOC Platform and Typical Network Teaching Platform[J].China Electro-chemical Education,2014(01):61-68.(In Chinese)
- [4] Liu Hehai, Li Qibin, Zhang, Shuyu. The Status Quo and Optimization Strategy of Chinese MOOC Platform Based on Edutools Evaluation System[J].Journal of Electrotechnical Education,2016,37(01):84-90. (In Chinese)
- [5] Tong Xiaosu, Jia Xiaojun. Exploration on the construction of MOOC quality evaluation system[J]. China remote education,2017(05):63-71+80. (In Chinese)
- [6] Wang Taotao, Mao Chenlei. Study on evaluation of learning effect of online courses based on learning analysis[J]. Chinese adult education,2018(17):93-96. (In Chinese)
- [7] Cheryl J. Wachenheim. Learning from Assessment: Effect of Changes in an Online Course in Agri-Sales on Students Perceptions and Performance. NACTA Journal, Vol. 52, No. 1 (March 2008), pp. 17-24.
- [8] Yu-Chu Yeh. Analyzing Online Behaviors, Roles, and Learning Communities via Online Discussions. urnal of Educational Technology & Society, Vol. 13, No. 1, Intelligent Tutoring Systems (January 2010), pp. 140-151.