The Construction of Online and Offline Blended Teaching Course Quality Evaluation System

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Abstract. Due to the in-depth integration of the Internet and information technology in the educational domain, the way about "teaching" and "learning" has changed, and the mode of online and offline blended teaching is increasingly appearing in university teaching. Establishing a reasonable and effective evaluation system of blended teaching course quality and improving teachers' teaching level are effective measures to guarantee the course quality of universities. This study constructs the online and offline blended teaching course quality evaluation system through six dimensions: teaching objectives, teaching contents, teaching resources, online teaching, offline teaching and teaching effects, which are conducive to comprehensively enhancing the blended teaching courses quality and the talent training quality in universities. This study not only enriches the study of the blended teaching course quality evaluation system, but also has a certain reference value for the practice of blended teaching course quality evaluation in universities.

Keywords: Online and offline blended teaching · Evaluation system · Course quality

1 Introduction

Due to the advent of the digital times, information-based education has provided rich resources and diverse environments for the teaching of university, making education gradually tend to be networked, digital, and intelligent. Due to the in-depth integration of Internet and information technology in the education field, the way about "teaching" and "learning" has changed, and the mode of online and offline blended teaching is increasingly appearing in the teaching of universities and has gradually become the basic form of higher education in the new period. Generally speaking, online and offline blended teaching is considered to be a teaching mode which integrates the teaching of online and the classroom teaching of face-to-face by making use of information technology. By taking advantage of the network teaching and the classroom teaching of face-to-face, online and offline blended teaching reconstructs teaching design and teaching activities, brings the learning initiative of students into full play, and improves teaching efficiency and learning effect [1]. Therefore, educational informatization has

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become an available way to boost educational development, enhance the quality of education and teaching, and satisfy the needs of talent training of the period.

On the basis of the background of education informatization 2.0 era, this study explores new education methods and teaching and research models, the teaching mode of online and offline blended may become the main mode of teaching in the future. This blended teaching model not only affects the teachers' role and the way of students learning, but also brings about new challenges to the management of teaching in universities. Therefore, it is very urgent to carry out research on the evaluation of online and offline blended teaching course quality. For the above-mentioned, this study constructs a complete, rich, scientific, reasonable, systematic and standardized online and offline blended teaching course quality evaluation system with the assistance of information technology, so as to achieve the effective combination of network classroom and traditional classroom, teacher teaching and student learning. It not only provides scientific teaching decision-making guidance for teachers and teaching management departments, boosts the mutual communication between teachers and students, further promotes the order of development process of blended teaching, but also provides an evaluation basis for universities to develop the teaching practices of online and offline blended.

2 Research Status of Online and Offline Blended Teaching

2.1 The Connotation of Online and Offline Blended Teaching

From the late 1990s to now, the definition of blended teaching has experienced a rich evolution process, covering three stages: technology-centred, teacher-centred and student-centred [2]. Blended teaching is generally regarded as a teaching mode combining traditional teaching via face-to-face and technical support teaching. Moreover, it organically a combination of the strong points of physical classroom-based teaching and network-based teaching, embodies the teaching concept of "student-centred", and emphasizes the interactive teaching of "students as subject and teachers as guidance" [3]. Compared with classroom-based teaching, the network-based teaching adds online learning links, which also leads to structural changes in the whole teaching environment, teaching methods, teaching resources and other educational ecology. Therefore, blended teaching is not a simple online teaching, nor a simple technical mixing, but to create learning experience for students which is really highly participatory and personalized, that is, to emphasize the mixing of teaching and counselling methods in the student-centred learning context [4]. And what's more, the blended teaching mode can guide students' autonomous learning, play an active part in the process of teaching, enhance the ability of students in autonomous learning, problem analysis, problem-solving and innovative thinking, and plays a significant part in enhancing the teaching quality [5].

2.2 Review of Research on Online and Offline Blended Teaching Course Quality Evaluation

The evaluation of teaching quality directly reflects the effect of teaching activities and tests whether the teaching effect reaches the teaching objectives. By using scientific

methods to measure and judge the teaching quality and learning quality, the evaluation of teaching quality can help teachers find deficiencies in the evaluation, urge teachers to improve teaching work, and further raise the quality of teaching [6]. As a significant part of modern school education and teaching, teaching quality evaluation is not only in favour of improving teachers' teaching effect, but also a significant guarantee for schools to develop effective teaching management and realize talent training, including teaching management department evaluation, peer teacher evaluation, and self-evaluation of students and teachers.

On the basis of literature review, it is found that a large number of scholars have studied correlational research about the blended teaching quality, including the dimension division of teaching quality, influencing factors, evaluation indicators and so on. In terms of dimension division of blended teaching quality, Wang et al. (2020) proposed that the online teaching quality evaluation system consists of three dimensions: teaching monitoring, evaluation and feedback improvement [7]. In terms of the influencing factors of blended teaching quality, the research showed that the motivation of learning, the interaction of peer, the structure of course, the feedback of teacher and other important factors affect the implementation effect of blended teaching [8]. Xie and Zhu (2012) found that the quality of blended teaching in university is affected by factors such as teachers, students, the support system of teaching, the effect and evaluation of teaching through a questionnaire survey [9]. In terms of blended teaching quality evaluation indicators, scholars have constructed a blended teaching quality evaluation index system on the basis of the concept of achievement orientation, the constructivist learning theory and different stages of blended teaching, including moral education cultivation, learning method ability, professional quality, professional knowledge and skills [10]. Subsequently, Zhang et al. (2020) constructed a "four-in-one" evaluation index system of online teaching quality on the basis of the goal of substantial equivalence between online teaching and offline teaching, so as to accurately evaluate, monitor and supervise the quality of distance teaching in an all-round and whole process [11]. Based on the dynamic development of teaching process, scholar has also constructed a blended teaching quality evaluation index system from the teaching content, teaching attitude, teaching skills and teaching methods [12]. In addition, in the effect evaluation of blended teaching mode, Zhao and Yuan (2010) used student satisfaction to reflect the motivation and results of students participating in blended teaching mode in the blended learning satisfaction analysis model [13].

To sum up, facing the high-speed development of information technology and the reformation of teaching mode, a large number of scholars have made some achievements in the research of blended teaching quality, but there are still the following deficiencies. First, the main focus of existing blended teaching quality evaluation system is the process of online teaching and ignores the diversification of blended teaching forms. Second, the design of blended teaching quality evaluation system rarely involves the reformation about teaching content, and lacks the integration of blended teaching content and the characteristics of the times.

3 The Construction of Online and Offline Blended Teaching Course Quality Evaluation System

Blended teaching uses the advantages of classroom-based and network-based to reform the traditional classroom. This new teaching method plays the role of guidance, instruct and supervision of teachers and promotes students' self-study and mutual learning. However, blended teaching involves not only teachers' own quality and teaching, but also students' learning motivation, learning state and learning effect, and even teaching conditions and other factors, therefore, it is very important to deal with the process of index design and quantification. This study designs an evaluation index system of blended teaching course quality on the basis of the below three principles: Firstly, the scientific principle, that is, the formulation of the index system should follow the objective law of blended teaching mode to guarantee the scientific and fair evaluation of teaching course quality; Secondly, the systematic principle, namely, the key influencing factors of blended teaching course quality should be considered as much as possible, and the index system should be clear and concise, so as to realize all-round and multi-level evaluation; Thirdly, the principle of measurability, all indicators should have good observability and measurability. On the basis of the current situation of blended teaching research, this study constructs the online and offline blended teaching course quality evaluation system, including six primary indicators: teaching objectives, teaching contents, teaching resources, online teaching, offline teaching and teaching effects (see "Fig. 1"), and its twenty-four secondary indicators, as shown in "Table 1". According to the connotation of each index and its importance in the whole system, the corresponding weight coefficient is determined.

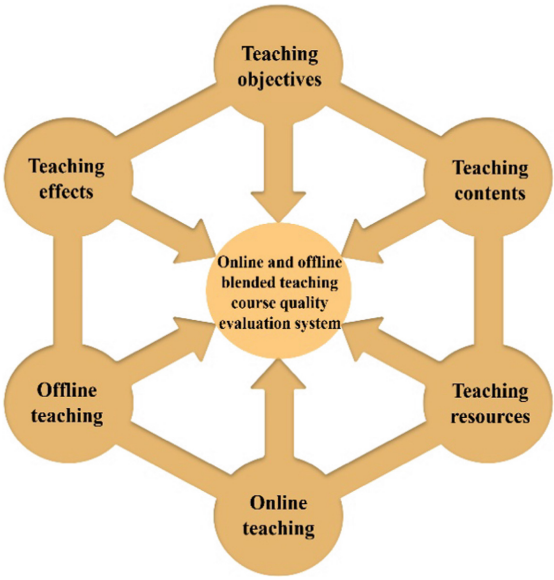

Fig 1. Online and offline blended teaching course quality evaluation system

The specific connotations of the six primary indicators are as follows:

First, in terms of blended teaching objectives, the teaching objectives provide a clear direction for course teaching and determine the overall quality of talent training. The setting of blended teaching objectives should focus on whether it meets the fundamental requirements of university students' training program, and it should combine the key characteristics of online and offline teaching in the meantime. It is also essential to emphasize the teaching concept of "knowledge imparting, ability training and quality improvement", which aims to help university students master professional knowledge, cultivate their ability of independent learning, communication and teamwork ability, and take into account the improvement of innovation ability. Specifically, it consists of four secondary indicators: The teaching objectives are clear, scientific and reasonable, and meet the professional training objectives; embodying the goal of "knowledge imparting, ability training and quality improvement"; paying attention to cultivate the students' ability of autonomous learning and cooperative learning under the information environment; reflecting innovation, high-level and challenge, as shown in "Table 1".

Second, in terms of blended teaching contents, as the key part of teaching, blended teaching contents need to be designed according to the teaching objectives, scientific and reasonable, highlight the key points, and keep up with the frontiers of disciplines and the hot spots of the times. At the same time, teachers should consider individual differences in the teaching process, and set up contents, tasks or activities that are conducive to improving self-learning ability and collaborative ability of university students according to the learning foundation, ability, interest of students, and the characteristics of the teaching content itself. In addition, based on the interactive relations between "teaching" and "learning", teachers need to consider knowledge imparting, communication and interaction in the classroom, as well as online autonomous learning, cooperation and mutual assistance, in order to achieve the mutual connection and integration of online teaching contents and offline teaching contents. Specifically, it consists of four secondary indicators: meeting the teaching objectives and designing teaching contents around the teaching objectives; the teaching contents are expressed clearly, accurately and scientifically, the key and difficult points are prominent, and the difficulty is appropriate; clarifying the contents of students' online self-study and classroom teaching, and ensuring the cross complementarity and close link of online and offline teaching contents; the teaching contents closely follow the frontier of disciplines and hot events, and should lay emphasis on the connection between theory and practice, as shown in "Table 1".

Third, in terms of blended teaching resources, it aims to advance the digitization of teaching resources and provide rich resources for university students' self-study. Teachers need to rely on the network platform to establish the basic information of the course, including courseware, cases and resources closely interrelated to the course teaching. And students are understandable about the knowledge framework, teaching objectives and expanding knowledge of the course through the information. Meanwhile, teachers should timely update the course teaching resources according to the changes of syllabus and course needs, in order to provide more learning resources for university students coinciding with their own development, and further promote the achievement of university students' learning goals. Specifically, it consists of three secondary indicators: the

construction of teaching resources is in line with students' cognitive level and teaching objectives; question bank, case and other teaching resources are rich, diverse and convenient to obtain; courseware, video and other teaching resources are updated in time, as shown in "Table 1".

Fourth, in terms of online teaching, as an indispensable support of blended teaching, reasonable online teaching can provide multi-dimensional communication space for the communication and interaction between teachers and students, further promote the students' understanding of teaching contents and improve their ability of active learning and innovative thinking. The index design includes the rationality of online teaching time and content arrangement, and carries out online learning activities with the help of online teaching platform, such as setting up some interactive question and answer sessions, fully mobilizing university students' initiative to participate in online teaching interaction, and arranging after-class homework and classroom quizzes for students, etc. This not only helps students consolidate their knowledge, but also understands the feedback of students on online courses. Meanwhile, teachers should also actively give attention to students' online learning situation, monitor and master the online teaching situation, identify the problems of students in a timely manner, and provide corresponding counselling and answering. Specifically, it consists of four secondary indicators: online class hours are reasonably arranged and carried out according to the teaching plan; reasonably design of online learning activities, including homework, test, discussion, reflection; properly intervening and urging students to study online, and the interaction between teaching and learning is appropriate; providing timely guidance, evaluation and feedback on students' online learning problems and achievements, as shown in "Table 1".

Fifth, in terms of offline teaching, the effectiveness of classroom-based teaching activities on the cultivation of knowledge and ability is realized. Teachers reasonably arrange the teaching content on the basis of the key and difficult points of the course and online learning feedback, and take "students as the subject and teachers as the guidance" as the teaching concept, reasonably control the teaching links, and while bring the digital teaching tools into full play to assist teaching. Moreover, teachers are encouraged to carry out diversified classroom construction, design students' autonomous learning of theories and cases, and conduct group discussion and communication, and finally report and display in the classroom, in order to fully mobilize the enthusiasm of university students to engage in classroom interaction and classroom display, and create a relaxed and active classroom atmosphere. Specifically, it consists of six secondary indicators: combining the key and difficult points of the course and online learning feedback, and arranging the teaching content targeted; the teaching ideas are clear and the key and difficult points are highlighted; the teaching links should be controlled reasonably, reflecting the concept of "students as the subject and teachers as the guidance"; teaching methods are flexible, and the classroom atmosphere is active; rational use of digital teaching tools to support teaching; guiding the student to study, summary and reflection, and paying attention to inspiration and discussion, as shown in "Table 1".

Sixth, in terms of blended teaching effects, a comprehensive judgment should be made in combination with the effects of online and offline teaching. The design includes the consideration of students' participation in online and offline teaching and teaching satisfaction, and uses group summary reports and course assessment tests to examine

Table 1. Online and offline blended teaching course quality evaluation index system

Primary index	Secondary index	Weight coefficient
Teaching objectives	The teaching objectives are clear, scientific and reasonable, and meet the professional training objectives	0.2
	Embodying the goal of "knowledge imparting, ability training and quality improvement"	0.3
	Paying attention to cultivate the students' ability of autonomous learning and cooperative learning under the information environment	0.3
	Reflecting innovation, high-level and challenge	0.2
Teaching contents	Meeting the teaching objectives and designing teaching contents around the teaching objectives	0.2
	The teaching contents are expressed clearly, accurately and scientifically, the key and difficult points are prominent, and the difficulty is appropriate	0.3
	Clarifying the contents of students' online self-study and classroom teaching, and ensuring the cross complementarity and close link of online and offline teaching contents	0.3
	The teaching contents closely follow the frontier of disciplines and hot events, and should lay emphasis on the connection between theory and practice	0.2
Teaching resources	The construction of teaching resources is in line with students' cognitive level and teaching objectives	0.3
	Question bank, case and other teaching resources are rich, diverse and convenient to obtain	0.4
	Courseware, video and other teaching resources are updated in time	0.3
Online teaching	Online class hours are reasonably arranged and carried out according to the teaching plan	0.1
	Reasonably design of online learning activities, including homework, test, discussion, reflection	0.4
	Properly intervening and urging students to study online, and the interaction between teaching and learning is appropriate	0.3
	Providing timely guidance, evaluation and feedback on students' online learning problems and achievements	0.2
Offline teaching	Combining the key and difficult points of the course and online learning feedback, and arranging the teaching content targeted	0.2

(*continued*)

Table 1. (*continued*)

Primary index	Secondary index	Weight coefficient
	The teaching ideas are clear and the key and difficult points are highlighted	0.1
	The teaching links should be controlled reasonably, reflecting the concept of "students as the subject and teachers as the guidance"	0.3
	Teaching methods are flexible, and the classroom atmosphere is active	0.1
	Rational use of digital teaching tools to support teaching	0.1
	Guiding the student to study, summary and reflection, and paying attention to inspiration and discussion	0.2
Teaching effects	Students have high participation in online and offline teaching and high satisfaction with teaching	0.3
	Thinking actively, exploring independently, mastering professional knowledge, and forming strong autonomous learning ability	0.4
	Meeting the ability design requirements of the training plan	0.3

students' autonomous learning ability, teamwork ability and professional knowledge mastery, as well as whether they have reached the ability design requirements of the training plan. Specifically, it consists of three secondary indicators: students have high participation in online and offline teaching and high satisfaction with teaching; thinking actively, exploring independently, mastering professional knowledge, and forming strong autonomous learning ability; meeting the ability design requirements of the training plan, as shown in "Table 1".

4 Conclusion

On the basis of the background of the information age, this study establishes the teaching development concept of "integration", fully utilizes the advantages of information technology, pays attention to guiding teachers to integrate the subjects they teach with information technology, and actively explores the blended teaching mode. The mode of blended teaching links the advantages of online and offline teaching, and effectively connects online courses with offline courses, which not only realizes the transformation of teaching paradigm from teaching to guidance for teachers, and from passive learning to autonomous learning for students, but also realizes the collaborative progress before and after class, online and offline. On the basis of the exploration of blended teaching mode, this study constructs an online and offline blended teaching course quality evaluation

system. Although this system is different due to the nature of the courses, the situation of teachers, the object of students and other factors, it is still feasible to build a blended teaching course quality evaluation system as a reference model, which can be used as a reference for university teachers to evaluate the blended teaching course quality. It not only provides a direction for the quality construction of blended teaching course in universities, but also has important significance for the cultivation of high-quality talents in universities.

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