



Construction of “Four in One” Online Course Teaching Quality Assurance Model Based on Analytic Hierarchy Process

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Abstract. This paper first analyzes the current situation of online courses by using descriptive statistical analysis method of SPSS statistical software, and points out the main problems existing in the guarantee of the teaching quality of online courses. Finally, using the analytic hierarchy process, this paper constructs a “four in one” online course teaching quality guarantee mode from four aspects: curriculum background guarantee, curriculum investment guarantee, curriculum implementation guarantee and curriculum evaluation guarantee.

Keywords: Online Course · Analytic Hierarchy Process · “Four in One” Model

1 Introduction

Under the current background of informatization teaching, the number of online courses is increasing, and online teaching is becoming more prosperous and showing a good development trend. Compared with traditional teaching methods, online courses teaching have many advantages. For example, it can more fully integrate and play the advantages of existing educational resources and is more conducive to broadening students’ horizons and knowledge. It can be said that in the context of information teaching, online course teaching is not only a useful supplement to traditional teaching methods, but also brings major changes in educational concepts, educational methods and learning methods. Online course teaching can fully stimulate students’ interest in students, enable students to truly participate in classroom teaching, and greatly improve the learning effect [1].

2 Descriptive Statistical Analysis of Online Course Teaching Quality

The survey involved 280 students, including 160 girls and 120 boys. After the questionnaire was collected, some invalid questionnaires were eliminated through careful proofreading and inspection, and finally 258 valid questionnaires were selected.

Table 1. Satisfaction with the teaching quality of online courses [self-painted]

Satisfaction Situation	Percentage (%)
High satisfaction	4.8
Satisfaction is relatively high	16.3
Average satisfaction	46.2
Satisfaction is relatively low	30.3
No satisfaction	2.4

Table 2. Online Communication Between Students and Teachers [self-painted]

Online communication	Percentage (%)
Often communicate	17.5
Occasionally communicate	26.7
Hardly communicate	55.8

2.1 Students' Overall Satisfaction with the Quality of Online Courses

The statistical results in Table 1 show that 2.4% of the respondents are not satisfied, 30.3% of respondents think that the satisfaction is low, and 46.2% of the respondents think that the satisfaction is average. The total number of respondents is as high as 78.9%; respondents who are highly satisfied with the quality of online course teaching and relatively high satisfaction account for 4.8% and 16.3% respectively, and the total is only 21.1%. The above data shows that most students currently have low overall satisfaction with the quality of online courses.

2.2 Online Communication Between Students and Teachers

The data results in Table 2 show that 17.5% of the respondents think that they will often communicate with teachers online, 26.7% of the respondents believe that they only communicate online with teachers occasionally, and 55.8% of the respondents hardly communicate with teachers online. The survey results show that most students are still unable to make full use of the online platform to communicate with teachers. This is not conducive to teachers taking targeted measures to understand the learning effects and to master their inner needs and ideas [2].

2.3 The Main Factors Affecting the Teaching Quality of Online Courses

Multiple choice questions “what do you think are the main factors affecting the teaching quality of online courses?” are designed in the questionnaire. According to the statistical results in Table 3, the respondents believe that the main factors are: “the attention of school leaders” (66.8%) and “the policy support of the school” (53.2%), “Teachers’

Table 3. The Main Factors Affecting the Teaching Quality [self-painted]

Factors	Percentage (%)
The attention of school leaders	66.8
Policy support of the school	53.2
Teachers' teaching ability	78.7
Financial support of the school	70.6
The degree of teachers' participation in Online Course Teaching	82.3
Other factors	15.2

teaching ability" (78.7%), "financial support of the school" (70.6%), "the degree of teachers' participation in online course teaching" (82.3%). The survey data shows that there are many factors affecting the teaching quality, including teachers' own teaching ability, the degree of teachers' participation in online course teaching, etc. there are also factors from the school level, such as the financial support and policy support for online courses.

2.4 Countermeasures to Improve the Teaching Quality of Online Courses

A multiple-choice question "what do you think are the countermeasures to improve the teaching quality of online courses?" is designed in questionnaire. The statistical results in Table 4 show that 56.3% of the respondents believe that it is necessary to establish a correct teaching view of online courses; 88.2% of the respondents believe that the teaching methods of online courses should be improved; 70.1% of the respondents believe that teachers' training should be strengthened from the perspective of improving teachers' teaching skills; 80.5% of the respondents believe that supporting measures for online course teaching should be increased. It can be seen that to effectively improve the teaching quality of online courses, we should not only establish the correct teaching concept of online courses from the ideological understanding, but also reform teachers' teaching methods, teachers' training efforts, school supporting measures and so on in the process of practice [3].

Table 4. Countermeasures to Improve the Teaching Quality [self-painted]

Countermeasures	Percentage (%)
Establish a correct view of online course teaching	56.3
Improving the teaching methods	88.2
Strengthen the training of teachers	70.1
Increase supporting measures for online course teaching	80.5

3 Main Problems in the Teaching Quality Assurance of Online Courses in Colleges and Universities

3.1 Lack of Necessary Policy Support

A systematic and perfect policy support system is the premise and foundation of improving the teaching quality of online courses. However, at present, most colleges and universities mainly focus on the quality assurance of traditional teaching, and the relevant policies for teaching quality assurance are mainly aimed at traditional teaching methods. The policy system for teaching quality assurance of online courses is very imperfect, resulting in the lack of guidance of guiding documents, which affects the improvement of teaching quality.

3.2 The Investment Guarantee of Online Course Teaching is Insufficient

On the one hand, there is a shortage of teachers. At present, many colleges and universities generally lack excellent teachers with information skills. Some teachers do not know enough about the functions and characteristics of general software and subject software related to teaching, and can not skillfully apply them; The lack of ability to acquire, process, produce and manage digital education resources has greatly affected the teaching effect. On the other hand, the research and development of online course materials is not enough. Most teachers obtain relevant resources through the internet in carrying out online teaching, and do not compile appropriate self-made teaching materials in combination with students' needs and subject characteristics, resulting in the lack of characteristics and innovation in online course teaching and students' low interest in learning.

3.3 There Are Deficiencies in the Implementation of Online Course Teaching

The teaching implementation is a comprehensive and systematic process, which involves all the main links of teaching. From teachers' lesson preparation before class to teaching feedback after teaching; From the choice of teaching content to the innovation of teaching methods, any link in the teaching process may affect the teaching quality. However, there are still some problems in the implementation of online course teaching in many colleges and universities, such as backward teaching content, single teaching means and insufficient teaching methods.

3.4 The Teaching Quality Evaluation of Online Course is Not in Place

Teaching quality evaluation is an important measure and effective guarantee to the online courses. However, at present, many colleges and universities do not evaluate the teaching quality of online courses in place. On the one hand, the evaluation subject is single, the participation of off campus evaluation subjects is not introduced, resulting in the lack of authority in the evaluation of teaching quality. On the other hand, the selection of teaching quality evaluation indicators of online courses is unscientific. Many colleges and universities adopt the same evaluation indicators as the traditional course teaching to evaluate the teaching quality, which does not reflect characteristics of the online course, resulting in the weak reference of the teaching evaluation results [2].

4 Construction of “Four in One” Online Course Teaching Quality Assurance Model Based on Analytic Hierarchy Process

The “four in one” online course teaching quality assurance model includes four levels: course background assurance, course investment assurance, course implementation assurance and course evaluation assurance, and each level includes specific content (Fig. 1).

4.1 Curriculum Background Guarantee

Curriculum background guarantee is the premise of online curriculum teaching quality guarantee, mainly including school policy, training program and teaching program. Through the formulation of relevant policies of the school and the formulation of online curriculum teaching training plan and syllabus, we can fundamentally ensure the basic direction of online curriculum teaching and lay the overall teaching tone of cultivating students’ innovative ability and improving their comprehensive ability.

4.2 Curriculum Investment Guarantee

The guarantee of curriculum investment refers to the full guarantee of the allocation of teachers, funds, teaching material research and development and other resources invested in the implementation of online curriculum. The guarantee of curriculum investment is an important basis for the guarantee of online curriculum, which provides objective and realistic conditions for the improvement of online curriculum teaching quality. Without excellent teachers, sufficient funds and high-quality teaching materials, the smooth development of online course teaching will be fundamentally limited, and the improvement of online course teaching quality is impossible [4].

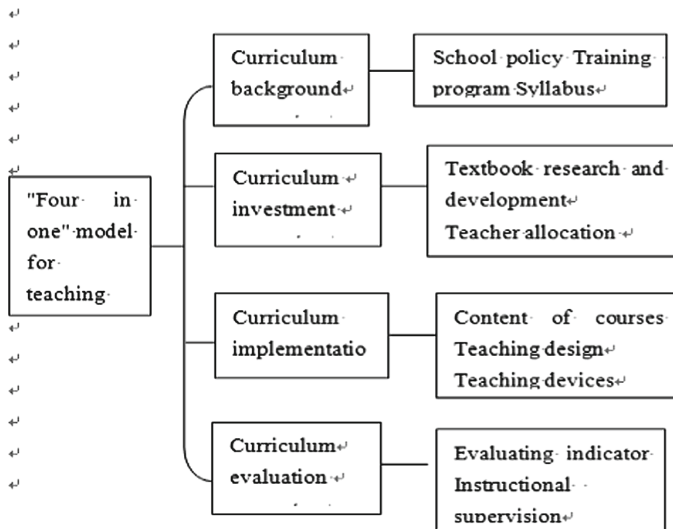


Fig. 1. “Four in One” Online Course Teaching Quality Assurance Model [self-painted]

4.3 Curriculum Implementation Guarantee

The guarantee of curriculum implementation includes teaching content, teaching design, teaching devices and so on. The purpose of curriculum implementation guarantee is to continuously improve teachers' teaching behavior on the premise of stimulating students' learning subjectivity, and ensure the teaching quality of online curriculum from the overall link of online curriculum teaching. Curriculum implementation guarantee is the core of online curriculum teaching quality guarantee, which helps to effectively solve the problem of insufficient learning motivation and low learning enthusiasm of students in online curriculum teaching.

4.4 Curriculum Evaluation Guarantee

The main purpose is to provide reference for improving and improving the teaching quality. The guarantee of curriculum evaluation mainly includes the selection of evaluation indicators, the implementation of teaching supervision system, the development of teaching feedback and so on. The guarantee of curriculum evaluation helps to find the deficiencies in the teaching of online curriculum in time, realize the dynamic management of online curriculum quality guarantee, and improve students' satisfaction with online curriculum learning [5].

5 Conclusion

The establishment of the “four in one” online courses teaching quality assurance model fully ensures the improvement of online courses teaching quality from four aspects: curriculum background, curriculum investment, curriculum implementation, curriculum evaluation. The “four in one” online courses teaching quality assurance mode effectively solves the problem of how to take students as the center and meet students' personalized needs; This model helps to improve students' lifelong learning motivation and lifelong learning ability, makes up for the lack of communication between teachers and students in educational relations, and promotes the mutual recognition between teachers and students; It promotes the new design and practice of the method, technology and evaluation of teaching quality assurance of network courses, makes the teaching classroom of network courses truly become a stage for thinking and inspiration, and ensures the fundamental improvement of teaching quality from all aspects and multiple angles; It has established a scientific, reasonable and effective online course teaching quality monitoring system and teaching quality evaluation mechanism, and formulated the corresponding monitoring, tracking and feedback system, which will help to fully mobilize teachers' initiative and participation and improve teachers' professional well-being.

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