https://doi.org/10.37420/j.cer.2024.053

A Study on Improving the Teaching Quality Evaluation System of Undergraduate Universities in the Context of Digitalization

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Abstract:
With the rapid development of digital technology, the teaching models in undergraduate institutions have undergone profound changes, with digital teaching becoming the primary mode of instruction. These new teaching model transformations have rendered the existing teaching quality evaluation systems inadequate to meet the demands of digital teaching. Focusing on the current teaching quality evaluation systems, we examine the evaluation content and standards in light of the new elements introduced by transforming teaching models in a digital context. We find that the current evaluation systems lack comprehensive evaluation content for digital teaching quality, fail to conduct a thorough assessment of the entire teaching process, and the selection of evaluators is neither scientific nor objective, thus posing a risk of distortion in teaching quality evaluation. Therefore, we propose that digital elements should be incorporated into the evaluation content based on the new connotations of digital teaching, constructing an evaluation system that covers the entire teaching process. Establish an evaluation personnel system that includes "teaching supervisors—peer professional teachers—student representative groups" to improve the existing teaching quality evaluation system. This system will enable accurate assessment of teaching quality in the digital teaching era, guide university teachers in improving their teaching methods, and further enhance the teaching quality of undergraduate institutions.

Keywords:
Teaching Quality, Teaching Quality Evaluation System, Digitalization

1.Introduction

During the fifth collective study session of the Political Bureau of the CPC Central Committee, General Secretary Xi Jinping emphasized that "the digitalization of education is an important breakthrough for China to open up new tracks for educational development and to shape new advantages in educational development," calling for "further advancement of digital education." Additionally, the "Key Points of the Ministry of Education's 2024 Work" explicitly states the need to promote the strategic action of education digitalization. The teaching quality of undergraduate institutions is directly related to the quality level of higher education in China and profoundly influences the quality of high-end talent cultivation. With the rapid development of

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digital technology, a range of digital technologies such as cloud technology, big data, and artificial intelligence have emerged and quickly been applied and developed across various industries, including rapid application and popularization in the field of higher education. Digital technology has had a profound impact on higher education, playing a crucial role in promoting the transformation of teaching models in universities. It has overturned traditional teaching methods and models, driving the evolution of teaching models from traditional blackboard teaching and multimedia teaching to today's digital teaching. This has significantly improved teaching efficiency and quality, and the corresponding teaching quality evaluation systems have also undergone multiple iterations and upgrades.

Since 1994, China has been continuously exploring a higher education teaching quality evaluation system with Chinese characteristics. The research perspectives and classifications of the evaluation system are diverse and complex [1]. Currently, research perspectives on the evaluation system of higher education teaching quality are rich and varied, primarily constructing educational quality evaluation systems from perspectives such as ideological and political education [2], innovation and entrepreneurship [3], big data [4], educational teaching [5], classroom teaching in higher education [6-7], online teaching in higher education [8], and practical teaching [9]. After years of exploration, cooperation, and participation among schools, society, and enterprises have gradually been realized, with human-machine interactive evaluation, an emphasis on intelligent evaluation of the learning process, and comprehensive evaluation highlighting intrinsic value [10]. However, current educational evaluation theory and technology in China remain inadequate [11]. Despite years of research and exploration yielding diverse outcomes, and multiple improvements to the teaching quality evaluation system, the rapid development of digital technology has made digital teaching the primary mode of instruction in higher education. The existing teaching quality evaluation systems are not well-suited for evaluating the quality of digital teaching. Therefore, exploring new teaching quality evaluation systems from a digital perspective is essential. This is crucial for university administrators to fully grasp teaching quality, adjust teaching strategies, and enhance the quality of instructors' teaching.

2.The Connotation of Digital Teaching Quality Evaluation in Undergraduate Institutions

Currently, undergraduate institutions have fully entered the new era of digital teaching, with a variety of digital education platforms, digital teaching models, and digital teaching resources available in diverse forms and types. To effectively monitor teaching quality in the digital age and ensure that undergraduate institutions maintain high-quality teaching amidst the digital wave, it is an urgent and critical need to construct a set of teaching quality evaluation systems suited to the digital era. This system should comprehensively evaluate the quality and effectiveness of teachers' digital teaching. Against the backdrop of accelerating digital technology development, the monitoring and evaluation of digital teaching quality are significant for enhancing the teaching quality of undergraduate institutions. It is crucial for maintaining competitiveness and cultivating talents that meet future societal needs. Specifically, it plays a positive role in improving teachers' teaching quality, enhancing the efficiency of teaching quality management by administrative departments, and ensuring the effectiveness of students' learning outcomes.

First, the system can enhance the digital teaching quality of teachers. A scientific evaluation of digital

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teaching quality can guide teachers to proactively improve their digital literacy and apply it in teaching. It encourages teachers to continuously learn new technologies and methods, thereby enhancing their digital teaching capabilities. It also helps teachers identify and rectify deficiencies in their teaching, further improving their teaching quality.

Second, the system aids school management departments in dynamically monitoring digital teaching quality. By constructing a digital teaching quality evaluation system, evaluating teachers' digital teaching quality, and collecting and analyzing data, management departments can more accurately and comprehensively grasp the quality of teaching. They can understand how digital technology is integrated into teaching, providing a basis for formulating teaching quality management strategies, and continuously optimizing the teaching quality management system, thereby improving overall teaching quality.

Third, the system ensures the effectiveness of student learning. By involving both school management departments and students in evaluating teachers' digital teaching quality, management can promptly adjust digital teaching plans. This ensures that the digital teaching model aligns well with students' learning needs, enhances the student learning experience, stimulates students' learning initiative, and consequently, improves their learning outcomes.

3.Major Issues in the Evaluation of Digital Teaching Quality in Undergraduate Courses

3.1 The Digital Teaching Quality Evaluation System is Not Yet Well-Established

At present, most undergraduate institutions have established teaching quality evaluation systems, with some having incorporated digital teaching as an element within their evaluation frameworks. Overall, the evaluation systems for teaching quality in undergraduate institutions still predominantly rely on traditional evaluation models. These models evaluate teaching quality based on five aspects: teaching attitude, teaching objectives and content, teaching methods and means, teaching organization and management, and teaching effectiveness. Evaluation of digital teaching quality is included as a secondary indicator under the "teaching methods and means" category. Although there is an evaluation of the digital teaching domain, its proportion is relatively small, and the evaluation content and indicator settings are not sufficiently comprehensive and well-developed.

The inadequacies of the digital teaching quality evaluation system bring about several adverse effects. On one hand, an outdated teaching evaluation system is unable to accurately assess teaching quality. The teaching management departments lack effective means to monitor the digital teaching quality of teachers, making it difficult to accurately evaluate the actual effects of digital teaching and posing a risk of distorted evaluations. On the other hand, an incomplete evaluation system fails to provide clear goals for teachers in their teaching activities. Teachers may not fully grasp the essence of digital teaching, remaining at the stage of merely using digital tools for teaching activities. This results in digital teaching becoming superficial, losing the significance and effectiveness of digitally empowered teaching, and consequently hindering the improvement of teaching quality.

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3.2 The Evaluation Indicators for Digital Teaching Quality Urgently Need Improvement

Currently, most universities in China use questionnaire surveys to evaluate teachers' teaching quality. The evaluation system evaluates digital teaching content mainly through subjective and qualitative indicators, with a lower proportion of objective evaluation indicators. Additionally, the content of the evaluation primarily focuses on process evaluation, lacking sufficient attention and emphasis on the quality evaluation of digital classroom teaching. Specifically, the evaluation of digital teaching remains at the level of "form" evaluation. This means that the evaluation mainly focuses on whether digital teaching platforms are used and whether digital teaching resources are available. However, aspects related to quality evaluation, such as the completeness of digital teaching resources and whether they are effectively and qualitatively integrated with actual teaching activities, are not included in the evaluation system.

3.3 The Selection Method of Evaluation Subjects Needs Improvement

From the perspective of evaluation subjects, the main actors executing teaching quality evaluations typically include teaching supervisors, peer teachers, and students. On one hand, supervisors and teachers, as peer evaluators, may have their professional backgrounds, personal preferences, and subjective feelings significantly influence the teaching quality scores of the evaluated teachers. Peer teachers come from different professional backgrounds, and their evaluation scores are likely to be influenced by their own professional attributes. Compared to science and engineering courses, humanities teachers might be more familiar with humanities courses, which could lead to a higher preference for these courses and, consequently, affect the scores of the evaluated teachers due to the subjective judgments of peer teachers. On the other hand, students, as one of the evaluation subjects, also have subjective factors, such as course difficulty, course preferences, and other personal feelings, that significantly impact the teaching quality scores of teachers. For courses that are difficult to understand, students might have a lower absorption rate of knowledge and attribute this to the teacher’s low teaching level, causing them to believe that the teacher's teaching quality is poor and thus give lower ratings. Conversely, for courses that are easier to understand, students might believe that the teacher's teaching quality is higher.

3.4 Insufficient Evaluation of the Entire Process of Digital Teaching Quality

The focus of mainstream evaluation systems is on assessing the quality of teaching within the classroom, primarily scoring teachers' performance during class. This includes evaluating teachers' attitudes, content, methods, and teaching effectiveness. The judgment criteria for these evaluations are largely based on the evaluator's assessment of the teacher's classroom performance. However, there is no comprehensive evaluation of the entire digital teaching process, and the indicator system lacks content that evaluates the entire teaching process. The evaluation of digital teaching quality follows a similar pattern. Digital teaching encompasses not only the use of digital tools in classroom teaching activities but also the evaluation of digital teaching design before and after class. Currently, most universities do not assess the quality of digital teaching in terms of pre-class preparation and accompanying digital resources, as well as post-class consolidation, topic discussions, and accompanying digital resources. The absence of comprehensive evaluation content for the entire digital teaching process makes it difficult for administrators to fully grasp the quality of teachers' teaching.

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4.Basic Principles of Classroom Teaching Quality Evaluation Systems in Undergraduate Institutions

4.1 Principle of Scientific Validity

The development of a teaching quality evaluation system should follow scientific principles and possess sufficient scientific validity. Based on educational science theories, combined with the current application of digital technology in the teaching field, a mixed-method approach of qualitative and quantitative methods should be used to formulate the indicator system. This ensures that the constructed indicator system can scientifically evaluate the teaching quality of undergraduate institutions in the digital teaching era.

4.2 Principle of Systematicity

The construction of an evaluation system should be systematic and comprehensive, not focusing solely on the evaluation of digital teaching methods while neglecting the evaluation of traditional teaching quality. Emphasizing only digital teaching can lead to a "methodology" bias, while focusing solely on traditional teaching can risk outdated teaching models. For the teaching subjects, both digital teaching theories and traditional teaching theories are equally important. Therefore, in the process of constructing the system, both should be given equal consideration and integrated into the research. The system should comprehensively cover all aspects of teaching activities, including teaching content, teaching methods, teaching effectiveness, teacher quality, student learning status, and the teaching environment. It should also encompass the entire process of digital teaching to ensure a more systematic and comprehensive evaluation of digital teaching quality.

4.3 Principle of Operability

The construction of the evaluation system should be operable. The proposed digital teaching quality evaluation system aims to optimize and upgrade the existing teaching evaluation system to meet the new requirements of the digital education era, helping government departments and school administrators to timely understand and grasp the teaching quality of instructors. To meet this practical need, the evaluation system must provide an effective measurement tool for evaluating digital teaching quality. Therefore, the constructed evaluation system must be executable and operable.

4.4 Principle of Development

The construction of the evaluation system should have a developmental aspect. One of the functions of the evaluation system is to assess and understand teaching quality. Additionally, evaluating teaching quality can provide direction for the development of teaching for both schools and teachers. The evaluation system should be constructed not only based on the current digital teaching model to grasp the current quality of digital teaching but also based on future development periods or goals. It should appropriately incorporate elements of future teaching models to guide and lead the upgrading of teaching models for universities and teachers. Therefore, the construction of the evaluation system needs to be based on the present while also appropriately incorporating future development goals, promoting construction and development through evaluation.

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4.5 Principle of Compatibility

The construction of the evaluation system should have objectivity, preventing an over-reliance on the subjective scores of individual evaluators to assess the ability and quality of teachers' digital teaching. The evaluation system should be constructed using mathematical methods, combining qualitative and quantitative approaches to enhance its objectivity. It should also introduce multi-level evaluation subjects to evaluate the instructors, preventing the strong subjectivity issues that arise from having a single type of evaluator.

5.Strategies for Constructing a Digital Teaching Quality Evaluation System

5.1Improving the Construction of the Digital Teaching Quality Evaluation System

According to the development goals set by undergraduate institutions and in conjunction with the actual situation of the universities' digital teaching transformation, a relatively scientific and comprehensive digital teaching quality evaluation indicator system should be established. First, a detailed analysis of the connotation of digital teaching should be conducted to clarify the evaluation content of digital teaching. The key digital elements that affect teaching quality should be identified, quantified, and incorporated into the evaluation system as one of the important components of digital teaching quality evaluation, thereby increasing the proportion of digital teaching in the evaluation system. Second, the improvement of the digital teaching quality evaluation indicator system must be aligned with the actual conditions of undergraduate institutions and match the universities' own software and hardware conditions. This allows teachers to clearly understand the main content of the digital teaching quality evaluation by the school, guiding them to enhance their digital teaching skills and quality in the right direction. Ultimately, this ensures that the digital teaching quality evaluation can be effectively carried out.

5.2 Constructing a Quality Evaluation System that Covers the Entire Process of Digital Teaching

To improve the digital teaching quality evaluation system, in addition to taking commonly used indicators such as teaching attitude, teaching objectives and content, teaching methods and means, teaching organization and management, and teaching effectiveness as the main evaluation content, it should also cover the entire process of digital teaching before, during, and after class.

First, from a horizontal perspective, the entire process of digital teaching, including pre-class, in-class, and post-class phases, should be included in the evaluation system. Second, from a vertical perspective, dimensions such as the integration of course content with digital elements, the quality of digital resources, and the methods of digital teaching should be incorporated into the existing evaluation system. Lastly, teachers' digital literacy is closely related to the quality of digital teaching. It not only directly affects the presentation of teaching content, students' learning experience, and learning outcomes but also concerns teachers' ability to select, integrate, and create high-quality digital educational resources, which directly impacts the richness and personalization of the teaching content. Therefore, the ability to apply digital technologies demonstrated during teaching activities should also be included in the teaching quality evaluation system.

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5.3 Optimizing the Selection System for Evaluators of Digital Teaching Quality

The selection of teaching quality evaluators should be scientific and reasonable to ensure that the evaluation results are fair and accurate, avoiding subjective evaluations by evaluators who are unfamiliar with the evaluated teacher's professional courses. Therefore, school management departments can establish a joint evaluation system that includes "teaching supervisors—peer professional teachers—student representatives," appointing teaching supervisors and peer professional teachers to collectively evaluate the teachers. The appointed evaluators should have high digital literacy, be well-versed in current advanced teaching theories and methods, be familiar with digital teaching models, and possess a strong theoretical foundation in relevant professional fields. Teaching supervisors not only have rich teaching experience but also possess advanced teaching method theories, enabling them to provide precise evaluations of common teaching quality aspects such as teaching attitude, teaching standardization, and teaching styles. On the other hand, peer professional teachers, with similar professional knowledge, can provide precise evaluations of highly specialized content such as teaching design, teaching content, and the quality of digital teaching resources. Finally, representative student groups should be selected to evaluate teachers, thereby reducing the influence of subjective scoring by students and enhancing the objectivity of the evaluation.

Funding

This work was supported by the Guangdong Educational Evaluation Association (Research on the Evaluation System of Teaching Quality in Undergraduate Institutions in the Perspective of Digital Transformation, grant number VDPG23022); 2019 Guangdong Province Department of Education Quality Project "Financial Man-agement Characteristic Speciality" Construction Project (grant number ,CXQX-ZL201902)

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