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Exploration of the Construction Path of First-class Undergraduate Courses in Application-oriented Undergraduate Universities Based on the OBE Concept

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Abstract: *The essence of first-class curriculum construction is to promote teaching reform, improve the quality of undergraduate teaching in higher education, and accelerate the construction of first-class undergraduate programs. The issuance of the "Implementation Opinions" provides action guidelines for higher education institutions to cultivate innovative talents. Applied undergraduate universities should combine their own characteristics, adhere to the education and teaching philosophy centered on student development, adhere to the results oriented approach, explore suitable curriculum construction paths, fully mobilize the subjective initiative of various relevant subjects, construct a closed-loop management system centered on courses, and provide policy, organizational, system, and mechanism support for building first-class undergraduate courses.*

Keywords: *OBE, first-class course, path, subject*

1. Introduction

Curriculum construction, as the central link of the basic construction of school teaching, is the foundation of discipline and professional construction, and an important guarantee for effectively implementing talent training plans, improving teaching level and talent training quality. The curriculum of higher education institutions is not only a medium for knowledge dissemination, but also a "germ" for knowledge production and innovation, involving various aspects of human and educational development. Schools organize teaching activities around the curriculum, which serves as a link between teachers and students and a fundamental guarantee for achieving educational goals and cultivating well-rounded individuals.

Curriculum is the most fundamental part of education, and it is the most important and indispensable fundamental issue that universities should pay attention to. It is the most important thing for universities, but also the most easily overlooked. Curriculum construction is to some extent on the edge of university work and higher education research [1].

2. The necessity of constructing first-class undergraduate courses in application-oriented undergraduate universities

Since 2003, the Ministry of Education has successively implemented high-quality courses, open courses, and online open courses. Over the past decade, it has indeed built a number of high-level landmark courses and achieved good results. However, the widespread existence of "water courses" in universities indicates that the goal of promoting the comprehensive improvement of the quality of university courses through the selection of high-quality courses based on the "selection logic" has not been fully achieved [2].

The construction of first-class undergraduate courses is a new concept for the development of higher education based on the idea of "building high-level undergraduate education and comprehensively improving the quality of talent cultivation". It reflects the new proposition of "returning to common sense, returning to our duties, returning to our original aspirations, and returning to our dreams", advocating for the "curriculum consciousness" with the joint participation and efforts of the government, universities, teachers, students, and others. The proposal of five types of golden

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courses and the recommendation and selection method based on the positioning and training objectives of universities indicate a change in the thinking of course construction. What we need to do is not to select the best from the best in the era of high-quality courses, but to use the power of the system to promote course construction by regulating the behavior of teachers and students, stimulating their initiative and creativity, and setting course benchmarks at all levels and categories, so as to achieve the goal of comprehensively improving the level of course construction and the quality of talent cultivation. This also puts forward new and higher requirements for the curriculum construction of applied universities.

3. A first-class undergraduate course construction path based on the OBE concept

Currently, there are various drawbacks in application-oriented local undergraduate colleges, such as a mismatch between the curriculum system and the positioning of application-oriented education, unreasonable curriculum design, outdated curriculum content, outdated teaching methods, and unsustainable curriculum assessment and evaluation. In the current education reform and teaching practice, the OBE concept is considered an effective means to solve current curriculum problems.

OBE, short for Outcome Based Education, was first proposed by the renowned educator Spady in 1981. The OBE concept follows a reverse design teaching thinking that focuses on outcome output, emphasizing that the educational process should be designed, organized, and restructured around achieving the expected learning outcomes of all students. Its connotation is usually summarized as "student-centered, output oriented, and continuous improvement". The core of the OBE concept is an output oriented view of talent cultivation, which positions the development of disciplines, majors, and courses based on social development, student expectations, and career development requirements, in order to determine the goals of discipline cultivation and clarify student ability indicators, such as what knowledge students need to master, what abilities they need to acquire, and what quality standards they need to achieve. On this basis, based on refined ability indicators, specific training plans for disciplines, majors, and courses are further established to carry out corresponding teaching practices. Under the output orientation, teacher allocation, curriculum design, curriculum structure design, teaching design, and teaching evaluation are all centered around student ability indicators [3].

The Implementation Opinions clearly require that first-class undergraduate courses should "establish the concept of student-centered, output oriented, and continuous improvement, enhance the high-level nature of the courses, highlight the innovation of the courses, and increase the challenges of the courses", indicating that the principles followed in the construction of first-class undergraduate courses are precisely the OBE concept. In the "2020 Work Points of the Higher Education Teaching Evaluation Center of the Ministry of Education", it is also proposed to "promote the establishment of an output oriented education system with output implementation as the main line and evaluation mechanism as the bottom line for majors". It can be seen that the OBE concept is an important practical direction for current and future curriculum reform and teaching evaluation in China.

To integrate the OBE concept into curriculum development, it is necessary to answer the following questions: why is this course offered, what learning outcomes does the course aim for students to achieve, how to effectively help students achieve these learning outcomes, how to know that students have already achieved these learning outcomes, and how to ensure that students can achieve these learning outcomes [4]. The process of answering these questions, which is the implementation path of first-class undergraduate courses in universities.

3.1 Based on the talent cultivation plan, create a first-class curriculum system

To build first-class undergraduate courses in applied undergraduate universities, it is necessary to take talent training programs as the source of first-class undergraduate course construction, change the logic of course quality construction, and focus on "benchmark logic" and "basic standards", supplemented by "selection logic" and "selection standards", to enhance the participation of all teachers and courses [5].

Firstly, we need to clarify the talent training objectives, actively combine them with national strategies and regional development needs, conduct in-depth research on enterprise expansion, accurately analyze and reasonably predict future economic and social development trends, comprehensively integrate student growth with industry, career, and work needs, and utilize the characteristics and advantages of schools, disciplines, and majors to clarify the training objectives. The

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training objectives should not only have the characteristics of the times, but also have a certain degree of foresight. As former US Secretary of Education Richard Riley said, we must teach current students to invest in jobs that currently do not exist after graduation, use technology that has not yet been invented, and solve problems that we have never thought [6]. We propose clear, transparent, and measurable graduation requirements based on the training objectives to support the achievement of the training goals; We establish a reasonable curriculum system to support the achievement of graduation requirements, forming a training objective support matrix based on graduation requirements and a graduation requirement support matrix based on the curriculum system; We have restructured the teaching syllabus to clarify the correspondence between course objectives and graduation requirements, and implemented curriculum construction reforms and teaching. Through such logical deduction, the curriculum construction is closely linked to social needs and training objectives, ensuring that the curriculum can always meet the needs of talent cultivation.

3.2 Improve the evaluation mechanism and continuously

Continuous improvement is one of the core concepts of OBE education. It requires educators to constantly reflect on the educational process, identify existing problems, and propose improvement measures to enhance the quality and effectiveness of education. Through continuous improvement, educators can better meet students' learning needs and promote their comprehensive development. And course evaluation is a key part of achieving continuous improvement. "Evaluation has diagnostic, corrective, and reverse reasoning significance for practice, which is why course evaluation plays an important role in course development [7]." Course evaluation can be divided into evaluation of the achievement of course objectives and evaluation of the quality of course construction:

3.2.1 Evaluation of course objective achievement

The evaluation of the achievement of course objectives is a prerequisite for continuous improvement. The focus of course evaluation should be on judging the achievement of course objectives, rather than the mastery of teaching content, to achieve the transformation from "exam centered" to "learning centered". We divide evaluation into summative evaluation and formative evaluation, encouraging diverse process evaluations such as classroom discussions, speeches, course papers, and group learning after class, gradually increasing the proportion of formative evaluation in grades, and focusing on the improvement of students' knowledge, abilities, attitudes, and values in the learning process. The evaluation criteria should be open, transparent, and measurable, and explore involving students in the process of formulating assessment standards. In terms of evaluation methods, we should change the single evaluation subject of teachers and explore the combination of student self-evaluation, group peer evaluation, and teacher evaluation. At the same time, we should strengthen the application of information technology, track the teaching activity process, and fully explore learning behavior data.

3.2.2 Quality evaluation and continuous improvement of curriculum construction

We have established a first-class curriculum construction evaluation system that is in line with the characteristics of the school, closely focusing on the connotation of OBE education philosophy and the demand for cultivating applied talents. The evaluation indicators for first-class courses are mainly constructed from two dimensions: course construction, course implementation, and management. We organize the evaluation of the achievement of curriculum construction goals based on the evaluation index system, and promptly provide feedback on the evaluation results and related opinions and suggestions to relevant units, providing reference for the continuous improvement of curriculum construction. The main body of curriculum construction formulates the next step of curriculum construction plan based on the evaluation situation and continuously improves it, forming a closed-loop system of "evaluation feedback improvement" to improve the quality of curriculum construction.

4. It give full play to the main role of curriculum construction

By carefully reviewing the specific requirements of the Ministry of Education for the construction of first-class undergraduate courses, it is not difficult to see that the construction of first-class courses is a comprehensive teaching reform project involving university administrators, teachers, and students, based on the fundamental transformation and updating of concepts, goal oriented, method reform key, evaluation as motivation, institutional strengthening and policy incentives as guarantee [8]. This requires coordination and collaboration among various construction entities to form a joint force.

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4.1 University administrators

4.1.1 Strengthen organizational management and clarify division of responsibilities

Curriculum construction management is a comprehensive reform project, involving management departments that cover almost the entire school. Therefore, it is necessary to start from top-level design to coordinate and plan, clarify the central position of undergraduate teaching in school work, and regard first-class curriculum construction as the basic project of high-level undergraduate education construction and the main lever for implementing the fundamental task of cultivating morality and talents. On this basis, coordination and communication should be carried out to clarify the respective functions and responsibilities in curriculum construction. Each party should perform their own duties while also coordinating with each other to form a joint force. We establish a two-level curriculum management model between schools and departments to implement the main responsibility of departments in curriculum construction.

4.1.2 Strengthen institutional construction and form cultural guidance

Each management department shall jointly develop a school curriculum construction implementation plan based on task division, clarify construction goals, key content, and policy guarantees, and jointly create a cultural atmosphere where teachers actively engage in teaching and students consciously study hard.

One is to establish a scientific and reasonable teacher performance evaluation system. Correctly handle the dialectical relationship between teaching and scientific research. Due to the explicit and quantifiable nature of scientific research achievements compared to teaching achievements, as well as the advantages in project application and professional title evaluation at all levels and types, there has objectively formed a negative trend in current universities that emphasizes scientific research over teaching. The phenomenon of "conscientiously cultivating oneself and educating students in a confused manner" is by no means an isolated case. In fact, the relationship between teaching and research is not a conflict of opposites, nor can it replace each other, but rather complementary and mutually reinforcing. This requires departments such as the Academic Affairs Office and the Personnel Office to place equal importance on teaching and research achievements when assessing teacher performance. It is particularly important to pay attention to the evaluation of teaching achievements, which should not only be based on explicit achievements such as educational reform papers and teaching competitions, but also to explore and establish a measurable and non standardized evaluation system. Be cautious when using student evaluation data, especially for teachers with low scores, carefully verify the situation, and avoid interfering with teachers' enthusiasm to improve course depth, difficulty, and challenge through student evaluation.

The second is to establish a high-quality system for improving teachers' teaching abilities. One of the most important differences between university teachers and primary and secondary school teachers is that university teachers generally lack systematic theoretical learning and sufficient teaching practice before entering their teaching positions. This requires the establishment of a sound teacher training system, including pre service training for new teachers, trial classes, assistant teaching systems, etc., fully leveraging the functions of the teaching and research office and teaching teams, promoting teaching discussions and experience exchanges, and leveraging the role of teaching masters and senior teachers in "transmission, assistance, and guidance". The Academic Affairs Office, Teacher Development Center, and other organizations regularly hold modern education and teaching theory and teaching ability training, organize teaching skills competitions, and create a cultural atmosphere that values teaching.

The third is to strictly implement the mechanism for admission and exit of courses, standardize the decision-making process for admission and exit of courses, and form a consciousness of strict governance of education. We regularly evaluate the quality and value of our courses, eliminate outdated and low-quality courses that do not meet current talent development goals, encourage teachers to transform scientific research achievements and industry frontiers into teaching content, carry out interdisciplinary and school enterprise cooperation, build high-quality cutting-edge courses, interdisciplinary courses, and industry education integration courses, and enrich and improve the curriculum system.

The fourth is to strengthen academic guidance and create a cultural atmosphere of active learning for students. This study delves into the implementation of undergraduate mentorship, explores peer mentorship, and provides targeted learning and life guidance for students; Provide professional

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introduction courses in the first semester to help students quickly understand what they need to learn in their major, how to learn, and its purpose; We will reform the student learning evaluation system, strengthen process evaluation and evaluation feedback, and shift the evaluation purpose from the achievement of teachers' teaching objectives to the degree of achievement of learning objectives; We conduct learner analysis by collecting and analyzing students' learning behaviors and outcomes, and implement personalized learning path recommendations based on knowledge maps, problem maps, and ability maps.

4.2 Strengthen the construction of curriculum support system and improve the level of curriculum construction

We need to vigorously strengthen the construction of laboratories, internship bases, and training centers, purchase advanced scientific research and teaching instruments and software, and provide strong support for course teaching; Improve the level of information technology construction in schools and build online learning platforms; Strengthen the construction of digital teaching resources and enhance the co construction and sharing of teaching resources.

4.2.1 Teacher

Teachers are the main body of classroom teaching implementation and the key to the level of curriculum construction. Among the seven aspects of first-class undergraduate curriculum construction proposed in the "Implementation Opinions", "changing concepts, renewing ideas", "goal orientation, optimizing curriculum", "enhancing abilities, strengthening teachers", "reforming methods, making classrooms lively", "scientific evaluation, keeping students busy" and other five aspects require active participation from teachers. The level of teachers determines the quality of curriculum construction.

We must strengthen the construction of teacher ethics and style. The responsibility of a teacher is to "preach, receive knowledge, and dispel doubts", which requires teachers to have a firm political stance, patriotic sentiment, and moral cultivation. They must also have good professional ethics, love the education cause, and effectively fulfill their duties of teaching and educating students. They should combine teaching and educating with self-cultivation, influence students on a spiritual level, and help them shape correct worldviews, outlooks on life, and values.

The second is to enhance professional competence. Professional competence refers to the knowledge and skills that teachers should possess when engaging in professional work. It is the ability developed during the process of participating in professional research activities and is the foundation for teachers to engage in teaching activities. In this era of knowledge explosion, teachers need to keep up with the forefront of the subject, actively engage in scientific research related to the curriculum, and update their knowledge reserves in a timely manner. German scholar Karl Jaspers believes that only scientific research can provide teaching content, and the latest scientific research achievements should be integrated into teaching. Otherwise, teaching content cannot keep up with the times, and the academic value in teaching activities is seriously insufficient. Teachers also need to be able to explore professional knowledge from other disciplines and integrate it with their own subject knowledge, which is beneficial for improving students' innovative thinking ability.

Thirdly, we need to improve our business level. Teacher's teaching ability is the foundation for teachers to effectively carry out teaching activities. In the context of the new era, the integration and innovation of information methods and classroom teaching have led to a new transformation in teacher's teaching ability, which is manifested in four aspects: teaching design, teaching organization, teaching evaluation, and teaching reflection [9]. College teachers should actively learn and absorb advanced educational theories and concepts, design teaching methods and assessment methods based on students' backgrounds, course objectives, and course content, and continuously improve their teaching abilities and levels. Especially, it is necessary to effectively enhance teachers' digital abilities, and in the process of education and teaching, they should be able to effectively use digital technology and tools for teaching design, implementation, evaluation, and management, in order to better cope with the teaching challenges of the digital age.

4.2.2 Students

The construction of first-class courses emphasizes student centeredness, and effective student participation is a necessary condition for achieving course objectives. The implementation of the curriculum is essentially a process in which students actively participate in teaching activities and actively construct their own knowledge and ability systems. In this process, students are not passive recipients, but collaborators of the teacher's teaching activities. The teacher's teaching and the student's learning are two sides of the teaching activities, relying on each other.

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In this process, students need to transform passive learning into active learning, establish the main responsibility of curriculum learning in terms of cognition, psychology, and action, actively participate in classroom activities, strengthen interaction with teachers, fully exert the initiative of thinking, not only as consumers of knowledge, but also as producers and creators of new knowledge, and cultivate and solidify comprehensive abilities and advanced thinking to solve complex problems in this process. At the same time, deep learning should be attempted to interactively adjust the "teaching objectives translated by teachers" and "one's own judgment of learning status and needs" to generate "learning objectives". Based on this, the path based expression and multimodal practice of learning objectives can be further achieved [10].

4.2.3 Enterprises

In addition to the above three entities, enterprises also play an irreplaceable and unique role in the construction of first-class undergraduate courses. Enterprises are essentially economic organizations that use modern knowledge to solve specific social problems, and they can provide an indispensable problem environment for talent cultivation and ability formation. Firstly, according to the market demand of enterprises, adjust professional directions, optimize course settings, update course objectives and teaching content, and improve teaching methods; The second is to carry out school enterprise cooperation, jointly develop courses and textbooks, and integrate industry frontiers into teaching content; Thirdly, providing teaching venues and environments for practical teaching; The fourth is to provide assistance for the construction of a high-level dual teacher team in the school by introducing external and professional teachers to the enterprise for further education and learning.

5. Conclusion

Curriculum is the main carrier for achieving talent cultivation goals, and the quality of curriculum directly determines the quality of talent cultivation. Building first-class undergraduate courses and comprehensively improving course quality is not only a practical need to adapt to the personalized and diversified development of students, but also a necessary condition for schools to achieve high-quality development. In this process, all participants in curriculum construction should work together, actively explore, and contribute to the improvement of curriculum teaching effectiveness and the construction of a high-level talent training system.

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