

Research on Teaching Model Reform based on Outcome Based Education

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Abstract: As an emerging educational concept, OBE has achieved good results in guiding teaching design, curriculum system, learning objectives and teacher team building. Based on the theoretical basis of OBE, this paper analyzes the OBE structure framework consisting of four processes: “defining learning output, realizing learning output, evaluating learning output, and using learning output”. The paper proposes an OBE-based teaching model reform measure: Emphasizing knowledge integration, constructing a perfect professional curriculum system; innovating teaching methods, fully realizing two transformations in the teaching process; giving play to the advantages of school-enterprise cooperation, innovating the development of production and education, and the development path of collaborative education; playing the role of teaching evaluation, building adaptation OBE's talent development evaluation system.

1. Introduction

OBE (Outcome Based Education) refers to the goal of instructional design and teaching implementation is the learning outcomes that students achieve through the educational process. Since being proposed by Spady et al in 1981, OBE concepts and methods have been recognized as an effective method for the pursuit of excellence in education, and have been valued by leading universities around the world. As an emerging educational concept, OBE organizes, implements and evaluates education with the expected learning output as the center. It is the structure and system of learning output to drive the whole curriculum activity and student learning output evaluation. Good results have been achieved in guiding teaching design, curriculum system, learning objectives, and teacher team building.

Traditional curriculum teaching strictly follows the prescribed process. For example, there is a unified teaching time, content and method, and the knowledge structure is cut into individual units, but the connection between units is weakened. However, the traditional course teaching process is centered on the teacher. The students passively accept the teacher's arrangement, learn according to the prescribed procedures, and accumulate the results as the final result. Using comparative evaluation, the students are divided or tagged by scoring, and the students are divided into different levels of success. The students are in a competitive environment, which is not conducive to cooperative inquiry learning, which limits the chances of students' success and is not conducive to teaching. The quality is improved.

In the OBE education system, educators must have a clear vision of the abilities and levels that students should achieve, and then seek to design appropriate educational structures to ensure that they achieve the desired goals. Student output, rather than textbooks or teacher experience, has become the driving force behind the operation of the education system. In this sense, the OBE education model can be considered as an innovation in the educational paradigm. Leading professional continuous improvement with OBE concept, taking students' moral quality as the foundation, establishing service as the purpose, promoting employment as the orientation, deepening professional connotation and curriculum system, improving the integration of production and education, innovating talent training mode, and continuously improving talents cultivate quality.

2. Theoretical Basis of OBE

The emergence and development of OBE is based on the following educational theories or educational ideas:

(1) Taylor principle. Ralph W. Tyler is a well-known American educator, curriculum theory expert and evaluation theory expert. He is also an important founder of modern curriculum theory and a master of scientific curriculum development theory. The "Taylor Principle" is considered to be the most perfect, concise and clearest explanation of the principles of curriculum development, and reach a new historical stage in the development of scientific curriculum development theory. Taylor proposed four steps or stages of curriculum development: it can be further summarized as "determining educational goals", "choosing educational experience", "organizing educational experience", and "evaluating educational programs". This is the basic content of "Taylor Principles".

(2) Master the theory of learning. By the famous American psychologist and educator Bloom, under the guidance of the idea that "all students can learn well", based on collective teaching, supplemented by regular and timely feedback, students are provided with the necessary individualized help, as well as the extra learning time required, allows most students to meet the mastery standards set by the course objectives. If you can provide ample study time, most learners can achieve learning goals. However, learners with weak learning ability and older learners need to spend a longer period of time than they want to achieve the same level of mastery.

(3) Competency-based education. Corresponding to the knowledge-based education, the curriculum, teaching and teaching objectives are more clearly defined around the knowledge, skills and abilities required for professional jobs. To meet the needs of enterprises and the development of practical capabilities, education and training focus on "ability." The school employs authoritative and representative experts from the industry to determine the competency standards that should be possessed according to the job requirements of the industry. The school is responsible for organizing the teaching staff, with the ability needs as the teaching goal, designing the curriculum system, formulating the teaching plan, and developing teaching activities, and finally assess whether the students have met the competency requirements.

(4) Educational target classification theory. The overall goals to be achieved in teaching activities are divided into three major areas: cognition, motor skills, and emotions. From the realization of the ultimate goal in each field, a series of target sequences are determined. The goals in the cognitive field are divided into six levels: memorization, comprehension, application, analysis, synthesis and evaluation; the goals in the field of motion skills are divided into four categories: whole body movement, subtle coordination action, nonverbal expression, speech act, etc. The goals of the field are divided into five levels: attention, response, evaluation, organization, and character system. The teaching of emotions or attitudes is not just a task of political class or ideological and moral class.

3. Structural Framework of OBE

OBE is a structural model for organizing, implementing, and evaluating education centered on expected learning outcomes. Achaia pointed out that the implementation of the OBE education model has four main steps, covering the various elements of the Edwards Deming ring. The ideological basis and method basis of total quality management is the Edwards Deming ring, also known as the PDCA cycle, which divides quality management into four stages: "Plan, Do, Check and Action". The PDCA quality control method is cyclic and closed, and it is also spirally rising. After multiple cycles and sublimation of PDCA, the quality of the project is always under control, as shown in Fig. 1.

OBE's structural framework is derived from PDCA, including four processes such as "Defining, Realizing, Assessing and Using". It is also a cyclical process. Each time a cycle is cultivated, the relevant elements of teaching are improved. The structural framework is shown in Fig. 2.

(1) Defining learning output. The aim is to ensure that teaching has a clear goal of enabling

students to acquire the skills needed for market development and to ensure core competencies and literacy. On the basis of fully understanding the connotation of OBE concept, systematically research the talent demand of related industries, and refine the definition of learning output according to the actual level of students and teachers and the needs of dynamic development of the industry, making it operational and concertized to guide specific teaching practices.

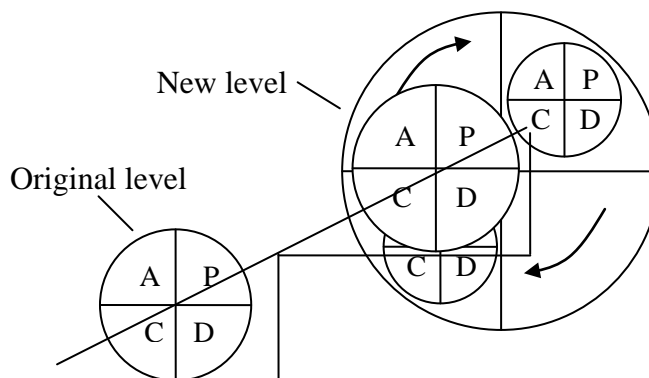


Fig.1. Cyclic rising process of PDCA

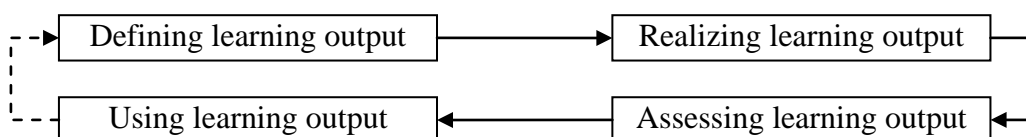


Fig.2. Structural framework of OBE

(2) Realizing learning output. All teaching plans and course content follow the "backtracking design" principle to achieve a complete matching matrix. In order to enrich the curriculum resources, all curriculum resources that can help achieve the expected learning outcomes should be included in the curriculum resource system. At the same time, in order to reduce blindness, the clear goal system formed by "backtracking design" provides a reliable direction for the construction and development of each curriculum resource.

(3) Assessing learning output. According to the theory and experience of American university learning assessment practice, it is expected that the evaluation of learning output can be carried out in the following aspects: According to the level, the learning output assessment can be divided into classroom level, professional level and school level. According to the assessment content, it can be divided into direct assessment and indirect assessment. According to the main body, it can be divided into teachers, students, alumni, employers, managers, and so on. The expected learning output assessment emphasizes the multi-level, all-round and multi-subject education evaluation concept.

(4) Using learning output. The use of learning output emphasizes two aspects. On the one hand, learners apply learning output to work, study and life as a test of learning output, enabling students to achieve an achievement experience and stimulate self-learning interest. On the other hand, the effect of learning output, as a feedback of curriculum resource construction, the continuous improvement of the quality of the curriculum, the guiding design of curriculum resources, and continuous improvement of teaching quality.

4. OBE-based Teaching Model Reform Measures

Based on the theoretical basis of OBE, the reform measures of the OBE-based teaching model proposed for the current problems in higher education teaching are as follows:

(1) Emphasis on knowledge integration and the establishment of a sound professional curriculum system. The theory of knowledge integration teaching believes that respecting learners' existing ideas and comparing old and new ideas with the main focus on new ideas, learners can achieve greater success, and the core goal is to help learners form coherent science. OBE emphasizes the

integration of knowledge, and reverses the design based on the knowledge structure, so that the curriculum system supports the knowledge structure, so that the learning of each course is in line with the knowledge structure, and finally the students achieve the peak results. An effective way to integrate knowledge is to build a complete professional curriculum system. The curriculum system should follow the pace of the times and conform to the trend of the development of higher education. Construct a curriculum map that integrates the curriculum system with the overall development goals of the school, guides students to elect courses and guides learning, and provides systematic, structural, and logical guidance. Under the framework of the course map, students select a course network that meets their own conditions, and plan the level of knowledge structure to define their own learning content.

(2) Innovative teaching methods and full realization of two transformations in the teaching process. First, students change from passive acceptance to independent learning. Students consciously participate in self-directed learning and master learning methods and skills. According to your own situation, arrange the time and place of study, and develop a complete study plan for yourself according to your hobbies and knowledge level, and build an interactive learning group to exchange and share learning outcomes and experiences gained from online and offline teaching activities. Second, teachers have changed from indoctrination to guided teaching. In order to meet the individual needs of students, flexible teaching methods are adopted. In the online teaching stage, teachers use multimedia means to independently design teaching resources such as micro-courses, reflecting the comprehensive knowledge points and clear and easy-to-understand explanation methods. Skilled in using the web platform and mobile terminals, teachers can communicate with students on the Internet. In the offline teaching stage, the classroom is mainly based on inquiry, discussion and participation, so that students can actively participate in the teaching process and guide students to construct a knowledge system flexibly.

(3) Give play to the advantages of school-enterprise cooperation, and innovate the development path of education, education and integration. School-enterprise cooperation is a cooperative model established between schools and enterprises, focusing on school learning and corporate practice, focusing on school and enterprise resources and information sharing. The assumption of the OBE concept is that it has the support and participation of the enterprise, and the cooperation between the school and the enterprise provides effective support for the development of the OBE teaching model. The integration of production and education is based on the cooperation between schools and enterprises. Through the school teaching process and the production process of the enterprise, it integrates the teaching process, production labor, quality cultivation, skill upgrading, technology research and development, management and social services. With the gradual deepening of school-enterprise cooperation, the talent training of colleges and universities is more and more adapted to the market demand, and the combination of education and economy forms a continuous and efficient cooperation network, thus forming a symbiotic and win-win collaborative education system. The specific integration path of production and education includes: organic integration of professional settings and industrial needs, integration of resources through the integration of resources, and strengthening the process management of enterprise practice teaching.

(4) Give play to the role of teaching evaluation and build a talent training evaluation system that is suitable for OBE. Teaching evaluation is based on the teaching objectives, value judgment of the teaching process and results, and serves the teaching decision-making. Teaching evaluation includes evaluation of teachers, students, teaching content, teaching methods, teaching environment and teaching management. Teaching evaluation plays an important role in the teaching process to ensure that the teaching activities achieve the intended goals. The talent training evaluation system adapted to OBE consists of two parts: evaluation content and evaluation method. The evaluation content is carried out from two levels, including systematic analysis of the teaching process, overall evaluation, and observation and evaluation of all aspects and activities of the teaching process. The evaluation method is also carried out from two levels. First, the diversification of the evaluation subject is realized, so that the evaluation truly becomes an interactive activity in which multiple evaluation subjects participate actively; secondly, the design diversification evaluation tool can be

an evaluation form or a questionnaire, class observation records, interviews, and study portfolios.

5. Conclusion

The OBE teaching model has been widely used and has achieved good results. Compared with the traditional teaching mode, it has obvious advantages: First, clarity. Teachers clarify the skills and literacy that students need to produce, and have strong pertinence in teaching resources and teaching tasks. The second one is flexibility. For different teaching contents, teaching methods and teaching methods can be appropriately adjusted, seeking a variety of teaching methods, jumping out of the traditional "teacher standing and speaking, students sitting and listening" education mode. The third is to measure. Enrich the assessment methods, fully understand the students' mastery of the basic knowledge, effectively measure the students' practical ability, and analyze whether the students' ability matches the social needs. The fourth one is participation. Not only the participation of students but also the participation of educators and business personnel is required to attract relevant personnel to participate in the formulation and evaluation of educational standards, so that the cultivation and employment of students can be better combined.

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References

- [1] Y. Xu, Y. Chen, F. J. Ge, "Discussion on the Teaching Reform of Mechanical Basis of Chemical Equipment Based on OBE," *Shandong Chemical Industry*, vol. 47, no. 23, pp. 173-174, 2018.
- [2] W. Wang, "The Construction of The OBE-based Quality Standard System of Engineering Education," Master's Dissertation of Hefei University of Technology, 2016.
- [3] Jin Gadi, "Research on Innovation of Undergraduate Seminar Course Model in Research Universities Based on OBE Theory," Master's Dissertation of Harbin Institute of Technology, 2017.
- [4] G. N. Bai, "Research on the Training Mode of Engineering Talents Based on OBE in 020 Environment," Master's Dissertation of Harbin University of Science and Technology, 2017.
- [5] X. Q. Zhang, J. Wang, X. L. Wang, "Exploration and Practice of the Teaching Reform of OBE Undergraduate Course in First-rate Specialty," *Education Teaching Forum*, vol. 11, no. 23, pp. 146-147, 2019.