# Research on Course Teaching Design Based on OBE Concept

Dongsheng Yang[(✉)]

Aviation Maintenance NCO School of Air Force Engineering University, Xinyang, Henan, China
myds702@163.com

**Abstract.** The article is exploring the course design ideas, focusing on the post ability training, which is based on the OBE education concept. The strategies and concrete measures of course teaching based on OBE concept are studied to provide theoretical support and guidance for course teaching reform.

**Keywords:** OBE concept · Teaching design · Post competency orientation

## 1 Introduction

Outcome Based Education (OBE) is also called ability oriented Education, goal oriented Education or demand oriented Education. Under this education model, educators need to make clear the learning results of students, that is, what kind of abilities and tasks students can complete after learning. On this basis, the teaching framework and learning achievement evaluation system are designed to guide students' progressive learning in a backward way, and the ultimate goal of improving teaching quality is achieved by evaluating the effectiveness of each learning process of students [1].

## 2 Characteristics of Course Teaching Under OBE Education Concept

The three core elements of the OBE education philosophy are: student-centered, output-oriented, and sustainable improvement. Student-centered means that the whole teaching activities and resource allocation should be centered on students' learning, growth and development. Output orientation refers to the determination of personnel training objectives guided by external demands of society, post and industry, and the determination of curriculum objectives according to personnel training objectives. Sustainable improvement, according to the talent training effect and achieved goals, curriculum objectives, personnel training objectives to make continuous improvement, and constantly improve the quality of talent training [2].

The core spirit of OBE education mode is to cultivate students' ability and realize the transfer of teaching activities from "teacher-centered" to "student-centered". In traditional teaching, teaching content exists before teaching objective and occupies the

core position. However, in OBE education mode, teaching objectives (expected learning outputs of students) exist before teaching content, and activities such as curriculum resource development, student management and guidance are carried out around the expected objectives. Therefore, in the OBE education model, students really become the center of teaching activities. Four questions should be focused on: what is the learning outcome that students want to achieve? Why should students achieve such learning outcomes? How to effectively help students achieve these learning outcomes? How do you know if the student has achieved these learning outcomes? Emphasis is placed on what the learner has learned rather than what the instructor has taught; Emphasis is placed on the outputs of the teaching process rather than its inputs; Special emphasis on inquiry teaching mode rather than indoctrination teaching mode; Special emphasis on personalized teaching rather than "carriage" teaching; Special emphasis is placed on "results-oriented". The so-called learning outcome refers to the maximum ability that students can achieve after a certain stage of learning. It is not only the content that students know and understand, but also the ability that can be applied to reality, as well as the values or other emotional factors that may be involved [3][5].

With OBE's concept to guide the teaching of the course design patterns changed the traditional teaching forms, students no longer passively obey the teacher's teaching activities, but the teachers and students together to participate in teaching activities, make the combination of teaching, learning and practice three aspects both to strengthen the students' autonomous learning ability and practical ability, and cultivate their innovative spirit and ability to cooperate, The level of teaching has also improved. OBE from a single mode of the evaluation system of the evaluation way into comprehensive consideration, the faculty by changing the proportion of student achievement in various evaluation index, academic knowledge of students, team cooperation ability and communication ability and so on comprehensive quality management all the way, it makes evaluation has reached the maximum level of detail and operational. OBE teaching evaluation focuses on learning outcomes, rather than teaching content, learning time and learning style. Multivariate and hierarchical evaluation criteria are adopted to emphasize the connotation of achieving learning outcomes and individual learning progress, rather than the comparison between students [4].

## 3   Teaching Design Ideas Based on OBE Concept

The implementation of OBE concept requires "defining learning outputs", "realizing learning outputs", "evaluating learning outputs" and "using learning outputs". "Defining learning outcomes" is the need to define the competencies and levels that students are expected to achieve upon graduation. For a course, it is to specify the overall goal that learners are expected to achieve, including knowledge goal, ability goal and accomplishment goal. "Learning outcomes", guarantee measures of students achieve anticipated goal, for the realization of the target is established on the basis of teaching, so teachers need to understand the characteristics of the knowledge system and attributes, determine the teaching content of each chapter, and adopt appropriate teaching methods according to different content, classroom teaching is the present form of this step. "Evaluating learning output" is multi-faceted, including the evaluation of school, specialty and

classroom teaching. For the curriculum setting, it is mainly based on classroom teaching evaluation, which mainly refers to the teacher's evaluation of students' learning results. "Using learning output" refers to the situation in which students apply the knowledge of the course in their jobs, and put the skills they have learned into full play in practice to meet the actual needs of their jobs.

### 3.1 Formulate Clear Teaching Objectives, Optimize and Integrate Teaching Contents

Develop curriculum teaching objectives with competency-based orientation, and highlight vocational post ability training and innovation ability training.

Based on the principle of "reverse design" of expected learning output, students' post ability needs are refined into targets that are easier to implement in specific teaching links and can be quantitatively or qualitatively evaluated. Make clear the contribution degree of each knowledge point and teaching activity to achieve the expected goal [6].

In traditional teaching activities, curriculum content is usually regarded as the core, and curriculum objectives are formulated according to the curriculum content. In the OBE model, the demand of industry and employer is an important basis for the construction of knowledge, ability and quality structure. The course objectives must be determined first, the selection of teaching content depends on the course objectives, and other in-class activities and the use of course resources should be carried out around the course objectives. The curriculum objectives under OBE mode are not only the cultivation objectives of the current curriculum, but also the objectives to be achieved in the future work. These objectives have a clear guiding role in the subsequent curriculum teaching design.

To optimize the course content according to the objectives based on the principle of reverse design, so that the content is closer to the job needs.

Traditional education curriculum syllabus, is actually to the teaching contents stipulated in the teaching material according to the arrangement of chapters, sections in order to make, for each chapter, each section of teaching hours and the teaching content of each lecture, as for each chapter, each day, each class of teaching content and what's the relationship between the ability requirements of the graduate students, to meet graduation requirements have what contribution is neglected, So that the teacher "teach not understand", students "learn not understand". The results-oriented teaching design is compiled according to the course objectives determined by the graduation requirements, rather than according to the chapters of the textbook. In this way, for each class, both teachers and students will be very clear, their own teaching or learning to achieve the graduation requirements of the contribution, so that teachers teach to understand, students learn to understand. Traditional teaching depends on teaching materials, teachers teaching materials, students learning materials, without teaching materials, teachers do not know how to teach, students do not know how to learn, into the teaching is limited to teaching, teaching is limited to courses, courses are limited to classroom, classroom is limited to lecturing, lecturing is limited to teaching materials. Results-oriented education weakens the systematicness, integrity and continuity of the curriculum itself, and strengthens the connection between the curriculum. The knowledge system of the course

may be "fragmented", but the overall knowledge structure is more reasonable and complete. Classroom teaching should be "intermittent" and "step-style", so that students will be able to repair one "discontinuity", step up one "step". The preferred "fragmented" knowledge should be able to highlight the characteristics of the major and highlight the connection of the major courses.

## 3.2  Update the Teaching Concept and Change the Teaching Mode

Update the education concept and realize the transformation from teacher-centered to student-centered.

In the practice of OBE education, the educational mode is gradually transformed from the traditional "course" to "learning course", requiring teachers to update their educational ideas and become the helpers, promoters and organizers for students to achieve the expected learning output. While improving the teaching quality of the first class, we strive to enrich the second class, create a diversified quality development platform, accumulate practical experience, and temper various abilities. In classroom teaching, we should innovate teaching mode, guide students to study independently and explore actively, highlight students' dominant position, and realize the transformation from teacher-centered to student-centered.

The traditional teaching concept is: the teacher is the teacher, that is, the teacher is the subject of teaching, teaching content depends on what to teach, teaching method depends on how to teach, teaching evaluation depends on how to teach. The new teaching principle is that the subject of teaching lies in learning, the purpose of teaching lies in learning, and the effect of teaching lies in learning. The teacher's first duty is to teach, its responsibility is to learn. "The main body of teaching lies in learning", that is, teaching should take students as the main body. "The purpose of teaching is to learn", one is to "enjoy learning"; Second, to "learn"; The third is to "learn". "The effect of teaching lies in learning" is how to evaluate teaching. We should abandon the traditional evaluation principle of "teaching by teaching" and insist on "teaching by learning". In other words, "how well taught" should be evaluated by "how well learned". Teacher could Change the teaching mode and implement the flipped classroom strategy to increase the "gold content" of classes.

On the basis of traditional teaching, with the aid of informatization technology is introduced into online hybrid teaching mode, in accordance with the "dominated by faculty and students as main body, ability training as the main line" principle, the three links to reshape before, class, after class, with the development of learning tasks for the open wire, ability quality wiring, elaborate design teaching activities, guide students to participatory learning, Make students happy to learn, learn to gain [6].

Classroom is still the main field of teaching implementation, but the current classroom teaching has not yet got rid of the fetters of traditional education. In order to meet the requirements of results-oriented education, at least the following changes should be realized: from indoctrination-oriented classroom to dialogue classroom, from emphasizing knowledge over action to integrating knowledge and action, from closing class to open class, from emphasizing learning over thinking to combining learning and thinking, etc. Indoctrination classroom is difficult to cultivate students' higher-order ability, and it is easy to become "cramming" classroom, which makes knowledge dominate the

classroom, teachers become the authority of knowledge, students become the "container" of knowledge, and the teaching process become the process of "copying" knowledge. Conversation class will be one-way infusion into multi-exchange, faculty from the classroom "actor" into "director", the students from class "audience" into "actor", the classroom from a centralized "into a" learning community ", make the knowledge transfer between teachers and students, students and students, the communication and interaction. Therefore, to increase the "gold content" of classroom teaching, we must change the indoctrination classroom into dialogue classroom. The theory and practice are disjointed and fall into the mire of knowledge education. In order to change this situation, we must establish the concept of practice education, transform "learning by sitting" into "learning by doing", achieve the unity of knowledge and action, emphasize learning from practice and applying what is learned, and emphasize active practice and learning by doing. Closed classroom is to complete fixed teaching content in fixed place and time. Teaching activities revolve around teachers, classrooms and teaching materials. Open classroom is to break through these three centers and realize the opening of time, space and content: the time extends from class to extracurricular, the space extends from classroom to library and laboratory, and the content expands from teaching materials to reference materials [7].

The key to implementing flipped classroom strategy is to change the teaching method and replace "feeding" with "raising appetite". The classroom will produce new questions, the formation of new views, as well as the teacher's new views, evaluation and conclusions recorded in a timely manner, after class through access to information, the use of online or offline channels, discussion with teachers, students and other ways to solve questions, deepen understanding, improve the level of knowledge. Open the lab, extend the classroom to the lab, use the second class or club activities, open the classroom door.

### 3.3 Implement Assessment and Evaluation Based on Competence-Oriented, and Construct a New Evaluation Method

At present, the main forms of assessment are students' exam results, attendance and completion of homework. This kind of evaluation method, evaluation subject and evaluation content are relatively simple, which obviously does not meet the requirements of OBE model. It does not combine evaluation with curriculum objectives, and it does not take "output" as the orientation, and the evaluation mechanism cannot reflect the requirements of ability cultivation.

Set the evaluation target based on the post capacity requirements.

Improving students' ability is the purpose of education, to provide students with high quality to complete the work in all aspects of ability guarantee, but also to lay a solid foundation for students' life development. Therefore, the goal of course learning evaluation should be established based on the improvement of students' ability.

## 4   Conclusion

This paper studies the optimization of curriculum design based on OBE concept, the establishment of post competency-oriented curriculum objectives, the reverse design

principle to create distinctive curriculum content, innovative teaching methods and methods, change the teaching mode, to create an efficient classroom. Besides optimization assessment and evaluation, the article also puts forward multivariate evaluation and data evaluation based on information means.

# References

1. Chit Siang Soh, Kia Hock Tan etc. Measuring Learning Outcomes of Bachelor Degree Program in Outcome-Based Education [J]. International Congress Engineering Education, 2010(8-9): 176-179
2. Katherine Tan, C Mei Chan, P Subramaniam, W Li Ping. The effectiveness of outcome based education on the competencies of nursing students: A systematic review [J]. Nurse Education Today, 2018(64): 180-189
3. Linda Barman, C Silen, K Bolander Laksov. Outcome based education enacted: teachers' in balancing between student learning and bureaucracy [J]. Adv in Health Educ (2014)19: 629-643
4. Mecwan A.I., Shah D.G., Fataniya B.D. Innovations in Evaluation: An Integral Part of Outcome Based Education [J]. Nirma University International Conference on Engineering (NUiCONE), 2015(5)
5. Mokhtar, W.A. Wan Adnan. Students' Perception on Assessment for Learning in Outcome-Based Education Curriculum: A Case Study in the Optical Communication Course [J]. World Engineering Education Forum, 2017(7): 553-557
6. Oriah Akir, Tang Howe Eng & Senian Malie. Teaching and learning enhancement through outcome-based education structure and technology e-learning support [J]. Procedia-Social and Behavioral Sciences, 2012: 87-92
7. A. Rahman, S. Baharun elt. Self-Regulated Learning as the Enabling Environment to Enhance Outcome-Based Education of Undergraduate Engineering Mathematics [J]. International Journal of Quality Assurance in Engineering and Technology Education, 2014(4-6): 43-53