Research on school-Enterprise OBE Management Mode Based on Computer Modeling

Haishan Chen¹⁺, Muhua Luo¹

¹Guangdong Industry Polytechnic, Guangzhou, China, 510300

*Corresponding author e-mail: 2007110025@gdip.edu.cn

Abstract. The application of OBE management mode in the process of school education management can effectively improve students' innovation ability and help students better adapt to the development of enterprises. This paper firstly explains the meaning of OBE teaching concept and its core elements as well as the characteristics of taking model as evaluation method, and then discusses the research on school-enterprise OBE management mode based on computer modeling for readers' reference.

Keywords: Computer Modeling, School-Enterprise Obe Management, Innovative Thinking, Results and Efficiency

1. Introduction
With the development of information technology, the application of computer technology in the educational process can change students' traditional passive acceptance of knowledge and actively participate in the learning process. At the same time, teachers can communicate and interact with students in the teaching process through computer modeling, so as to realize the intellectualization and digitalization of the teaching process and promote the all-round development of students.

2. The meaning and core elements of OBE teaching philosophy
Innovative education calls for the innovation of education. Traditional teaching mode is not enough to cultivate students' innovative thinking and ability. Colleges and universities need to break the situation of "teaching" as the main and "learning" as the auxiliary, emphasize student-centered, follow result-oriented, reverse design teaching system, constantly improve the teaching process and teaching methods [1-3]. The introduction of educational concept can effectively change the deficiencies in the traditional teaching mode [4-6].

2.1. A reverse design of the teaching system
OBE concept refers to the concept of result-oriented Education, which can also be called demand-oriented, ability-oriented or goal-oriented Education concept. In English, it is expressed as Outcome-based Education. It was first put forward by American scholar Spady. "Outcome" refers to an educational model in which students acquire the ability equal to the knowledge they have learned through their own efforts, which can help each student obtain the expected learning outcome through
learning. The CONCEPT of OBE is also a kind of education mode that reverse-designs the teaching system based on the expected learning results of students. At present, THE OBE concept has become the mainstream concept in the field of international engineering education. With the continuous advancement of education and teaching reform in China, the concept of OBE is integrated into education and teaching reform to explore

The reform of university teaching mode based on THE CONCEPT of OBE is of great significance for promoting the current reform of university education and teaching and improving the quality of application-oriented personnel training. From the theory of OBE concept, the essence of OBE education is a kind of thinking with students as the main body. From the perspective of the practice of THE OBE concept, it emphasizes what students have achieved, focuses on what students can do in the future, tends to the application of practical abilities, and requires continuous attention to students' learning outcomes.

In recent years, Chinese colleges and universities have made some achievements in promoting the teaching mode reform of OBE concept. It is proposed that based on students' learning results and efficiency, the results can be obtained through exploration and analysis according to professional characteristics and work attributes, and the structure theory of such professional results can be constructed and the results-oriented education can be formed. The OBE concept not only attaches importance to students' stage learning outcomes, but also requires educators to pay continuous attention to students' learning outcomes.

2.2. The OBE concept emphasizes student-centered and results-oriented

One of the core elements of the OBE concept is student-centered, which is mainly reflected in three aspects. First, the design of teaching is student-centered. In the course of teaching design, the actual needs of students should be taken into consideration so that students can obtain the corresponding learning results through the learning process. Second, resource allocation is student-centered. The allocation of school resources is the main guarantee of students' learning, which is based on the guarantee of students' final learning results. Thirdly, teaching evaluation is student-centered. The only criterion for teaching evaluation is students' learning outcomes, while other teaching links provide support for students' learning outcomes. Under the CONCEPT of OBE, the teaching system is designed mainly around five major issues: cultivation objectives, social needs, teaching process, teaching evaluation and teaching management. The training goal focuses on what learning outcomes students have achieved. Social needs, explain why students should achieve such learning outcomes, teaching process, emphasize how to effectively help students achieve these learning outcomes; Educational management focuses on ensuring that students are able to achieve these learning outcomes. Based on the above five main problems, it can be seen that the OBE concept takes output orientation as the evaluation basis of educational outcomes, and the learning outcomes obtained by students are an important standard for the evaluation of educational and teaching quality. Based on this, the training objectives of students can be dynamically adjusted to form a sustainable and improved circulation system inside and outside the school.

3. The characteristics of model as evaluation method

Using model test like traditional test methods can not only test the students to understand and grasp of the concept of degree, and the model for its large amount of information, systemic strong wide, depth, give attention to both teaching and learning evaluation of the advantages of the two aspects and so on many aspects, can more truly reflect the learners to knowledge organization status and meaning of the effect of the construction. Through the model, teachers can understand the concepts that students misunderstand when interpreting the content. The model constructed by students expresses their understanding of concepts, so teachers can use the model to judge students' understanding of concepts and the reasons that affect the teaching effect. In addition, the model allows teachers to assess the attributes of propositional knowledge (for example, structure, detailed detail, validity, complexity), describing knowledge as a whole network rather than as a collection of concrete facts. As an evaluation
tool, the model can be used to describe the change of knowledge and understanding in different time. The model can determine the degree of consistency between students and finished products constructed by teachers. Hoz et al., "Compared with the traditional achievement test, the knowledge structure dimensions generated by the model are unique, which cannot be completed in the traditional test (Figure 1 English Teaching Model)."

3.1. Model evaluation method is helpful to construct students' structured thinking mode
The model helps learners to represent concepts in concrete and meaningful ways, promote the explicit thinking and learning reflection, and make the invisible tacit knowledge explicit. In the process of accepting and forming the evaluation model, learners promote the integration of new and old knowledge, construct the knowledge network, condense the knowledge structure and cultivate the ability of self-reflection. Through continuous evaluation of themselves and continuous improvement of knowledge structure, learners can spontaneously have connections between concepts and missing parts of personal knowledge network. Learners express their understanding of knowledge through models, which helps to strengthen the formation of knowledge structure and promote the construction of learners' knowledge (FIG. 2 construction of network system knowledge).

3.2. Model evaluation method may improve learners' interest in learning
The traditional test is conducted by paper-and-pencil examination, in which students complete the test independently in a limited time under the supervision of the teacher. This form of testing often puts students in a state of tension that may affect their normal performance. The evaluation will be different by means of computer modeling. Learners use modeling software to construct structural models with knowledge in their minds. Model is made by learners themselves so that they immersed in themselves

Figure 1. English teaching model.

Figure 2. Construction of network architecture knowledge.
in the process of knowledge construction, although the modeling task is also challenging, but students in the "create" their own "work" in the process of gratification tend to eliminate their tension, sparking interest in this way of "alternative" evaluation. At the same time, in the process of constructing the model, learners re-organize and plan their knowledge, further improve their grasp of knowledge, and achieve the purpose of "examination is learning". In addition, by building the model by hand, learners' enthusiasm can be fully aroused, their interest enhanced, and learners can be more effectively engaged in the learning process (FIG. 3 Information education).

3.3. The model evaluation method is conducive to the diversification of evaluation subjects
Due to their own position, knowledge and limitations, the evaluators give different evaluations to the curriculum, and there are even some differences. Therefore, when teachers evaluate learners' learning performance, they may be limited by the inherent thinking mode and unable to find the shining points in learners' learning results, so it is difficult to give accurate and comprehensive feedback. In the process of teaching, teachers should establish a diversified teaching evaluation system and a multi-subject evaluation mechanism. In other words, the evaluation not only requires the participation of teachers, but also the participation of students, collaborators, competitors and even parents. The final evaluation result is made based on the feedback and evaluation suggestions of all parties. When the learner constructs the model for evaluation, the teacher can instruct the learner to use modeling software to make his/her own knowledge network diagram, and can also use the network for collaborative learning. The team can also brainstorm ways to co-create group models.

4. Research on school-enterprise OBE management Mode based on computer modeling
For the teaching of public basic course, combined with the teaching practice, put forward the following specific suggestions for reference.

For public mathematics mathematics should introduce more application examples to identify problems, through into the history of mathematics in the teaching, teachers' earnest analysis of Newton, cauchy scientists found to solve problems such as the background, students are encouraged to assume station environment at the time how to solve or part to solve these problems, such as the law of universal gravitation found with deduction, definition and calculation of curvature, introduced by differential function solving monotone nature principle of $f(x) = e^x - x^2$.

Cultivating translation for the actual problem ability of mathematical symbols, in explaining the definition of limit, the intermediate value theorem, the zero-point theorem appropriate changes into the life of common model, for example, two people will meet to walk in the same way relative to prove, met down on that chair two feet three feet four feet ground at the same time prove that the essence of reality expression is' translation ability training.

Take the teaching content as a mathematical model, pay attention to the mechanism analysis, let the students understand the connection, principle and method, learn to diverge, synthesis and rise, overcome the long-term traditional teaching to develop rote bad model, the following examples to illustrate specific methods.

It is known that $f(x) =x^2n$. Find out that the line AB intersects the function $f(x)$ at point C at x, so
as to minimize the area and \( S = S_1 + S_2 \).

Try to solve as many problems as possible, devise a variety of methods to solve, mathematical software can be used to solve the experiment. The above problem can be solved by \( x \)-type integral, \( y \)-type integral, using Mathematica software to solve different \( f(x) \) to get \( x = 0.5 \).

Analyze the principle of the problem, try to find the optimal solution, and apply logic to prove that the \( y \)-type integral is correct when analyzing the segmentation direction of the above problem, obtain the minimum \( DS = 0 \) after the analysis is simplified, and get the minimum \( DS = 0 \) after the same \( dy \) elimination, the secant lines on both sides are the same, this problem is ostensibly a calculation problem, through the analysis principle and essence is the analysis of micro-element method.

The principle of microelement analysis can be extended to many cases.

For example, it is known that \( f(x) = x(x-1) \), ray \( y = Ax \) and \( x = 1 \) surround the area \( S_1 \) and \( S_2 \), and calculate the value of \( A \) to minimize \( S = S_1 + S_2 \). In this way, polar coordinate segmentation microelement method is applied to analyze the problem. When solving the problem, it is first developed to solve the problem from the principle, and after thinking clearly, it is then solved by using the formula.

5. Conclusion

To sum up, in the teaching process of school-enterprise OBE management mode under computer modeling, students can strengthen the construction of knowledge, and the educational resources of schools can also provide guarantee for students' learning. The design of teaching system is combined with five main problems, namely, training goal, social demand, teaching process, teaching evaluation and teaching management, so as to meet the needs of enterprises for students' comprehensive ability.

Acknowledgments

1. Guangdong Light Industry Vocational and Technical College educational reform project "professional entrepreneurship" integration of higher vocational hotel management professionals training practice research (number: JG201918);

2. Guangdong Light Industry Vocational and Technical College School-level Model Student Base (No.164220036).

References

[1] Huang Chuanlin, Sheng Guojun, Lu Yanxia. The construction of information talent training mode system based on OBE [J]. China education informatization, 2018 (23): 31-34.

[2] Wang Na, Liu Jie, Lin Lin, LV Haiping, Liang Xiufang. Research on the receivables of cross-cultural talents in Local Universities Based on "OBE" Education Mode [J]. Journal of Cangzhou Normal University, 2016,34 (04): 111-114.

[3] Dong Lingling. Teaching exploration of logistics management course based on OBE mode [J]. Changjiang series, 2018 (25): 202-203.

[4] Zhou Hongbo, Zhou Ping. Research on the reform of university teaching mode based on OBE concept [J]. China Adult Education, 2018 (04): 92-94.

[5] Li Lingyun, Li Xiubin, Zhang Wejun. Middle school physics teaching based on computer modeling [J]. Teaching and management, 2015 (13): 50-51.

[6] Zhang Baohui, Zhang Jinde, Huang Longxiang. Application of computer modeling in teaching evaluation [J]. China audio visual education, 2013 (04): 103-109.