

# *Research and Practice on Achievement of Curriculum Objectives Based on Outcome-Based Education Idea*

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**Abstract**—Outcome-based education is an educational concept guided by "student-centered, output-oriented and continuous improvement", focusing on students' final learning outcomes. Course teaching is the most basic and important link in the teaching activities of higher education. Achievement degree of curriculum objectives is the most important basis for judging whether the graduation requirements can be achieved and whether the professional training objectives can be achieved. Based on the concept of OBE, this paper taking the practice of OBE curriculum reform in Shouyi College of Wuchang as a teaching case, combines quantitative and qualitative analysis of students' learning achievement, finds out the weak links of classroom teaching, reflects on classroom teaching effect, and formulates targeted improvement measures to ensure the continuous improvement of teaching quality. The results show that the achievement of curriculum objectives has a better evaluation and improvement effect on students' learning outcomes.

**Keywords**—outcome-based education; curriculum objectives; achievement; evaluation

## I. INTRODUCTION

As an advanced educational concept, outcome-based education, also known as ability-oriented education, goal-oriented education or demand-oriented education, was put forward by Spady et al. in 1981 [1], and soon gained people's attention and recognition, and has become the mainstream concept of educational reform in the United States, Britain, Canada and other countries.

Since the introduction of OBE education concept into China, OBE has been highly valued by the government and educational circles [2]. The implementation of OBE requires that the existing teaching mode should be changed from "teacher-centered" input teaching to "student-centered" output teaching. Outcome-based education (OBE) is a model of education that favors making students demonstrate that they know and are able to do whatever the required outcomes are [3].

OBE is a structure and system in which learning output drives the whole curriculum activities and students' learning output evaluation [4]. It reconstructs the curriculum system and reforms the teaching content by implementing learning output in anticipation of learning results. OBE refers to the learning outcomes of students through the educational process, which is the goal of teaching in design and implementation [5]. Learning outcomes represent a kind of ability structure, which is mainly realized through the teaching of courses. There should be a clear mapping relationship between the competency structure and the curriculum structure. Each competency in the competency structure should be supported by a clear curriculum. In other words, each course in the curriculum system should make a definite contribution to the realization of the competency structure [6]. Studies had proven that the traditional curriculum heavily emphasized academic achievement so that the task-based and output-oriented educational activities simply fell short of [7].

Based on the concept of OBE, and this paper, guided by student-centered, output-oriented and continuous improvement, takes the OBE curriculum reform practice of Wuchang Shouyi College as an example, and explores the evaluation and improvement effect of the achievement degree of curriculum objectives on students' learning outcomes [8].

## II. AN OVERVIEW OF THE EVALUATION OF ACHIEVEMENT DEGREE OF CURRICULUM OBJECTIVES

Course teaching is the most basic and important link in the teaching activities of higher education. The teaching goal is the starting point of all the teaching activities, and the degree of achieving the teaching goal is the means of evaluating the quality of classroom teaching and providing feedback information for teachers[9].

Achievement of objectives is an important index to evaluate the teaching effect of courses, which reflects the achievement of the established curriculum objectives[10]. Courses are the basis of supporting graduation requirements and professional training objectives. Achievement of curriculum objectives is the most important basis for judging

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whether graduation requirements and professional training objectives can be achieved. In order to ensure that the curriculum system can effectively support the corresponding indicators in the graduation requirements, it is necessary to periodically evaluate the achievement degree of each curriculum goal and apply the evaluation results to the continuous improvement of the curriculum and curriculum system [11]. To this end, we should adhere to the following principles:

Firstly, we should adhere to the goal of result-oriented curriculum evaluation. The concept of OBE emphasizes continuous improvement, curriculum learning outcomes and results orientation.

Secondly, we should construct the evaluation index system of learning achievement. The concept of OBE emphasizes student-centered and attaches importance to the degree of achievement of students' learning outcomes.

Third, we should change the content and form of evaluation. According to the concept of OBE, students' learning results should be incorporated into the evaluation system, the content and form of previous evaluation should be changed, the assessment on knowledge points should be changed to the assessment on skills application, and formative assessment should be strengthened [12].

The ability of curriculum content design and learning effect should support students' graduation ability requirement, that is, "learning output" at the curriculum level is a part of "learning output" at the professional level [13].

The content of curriculum evaluation: First, it evaluates the process of curriculum teaching plan, syllabus and so on. Secondly, it evaluates the course implementation process. It is necessary to check whether the principles and procedures of OBE are followed in the course of curriculum implementation and whether teaching strategies and methods are selected according to the evaluation criteria of OBE. Thirdly, it evaluates the results of curriculum implementation.

The evaluation methods and procedures of curriculum objectives achievement: Firstly, the evaluation cycle of curriculum objectives achievement is every semester. Secondly, in each syllabus, several curriculum objectives corresponding to the points of graduation requirements should be set up, and the corresponding matrix of curriculum objectives and teaching contents, teaching links, assessment methods and scores should be set up. Teaching design and activities should be put into force around the realization of curriculum objectives. Thirdly, at the end of the curriculum, achievement of each curriculum objective and achievement of the overall curriculum objectives should be evaluated [14].

**III. PRACTICE ON ACHIEVEMENT OF CURRICULUM OBJECTIVES BASED ON OUTCOME-BASED EDUCATION**

This paper takes Marketing of International Trade Major of Wuchang Shouyi College as an example to introduce the practice on achievement of curriculum objectives based on outcome-based education.

**A. Curriculum objectives and abilities to be achieved by students**

Marketing is a basic course with strong comprehensiveness and practicality for the major of economic and management. Through systematic study of the theoretical knowledge of this course, as well as relevant case discussion and role simulation training, the students' marketing consciousness will be cultivated, so that they can master the modern marketing theory skillfully and have the ability of market research, decision-making, development and marketing practice. Meanwhile, in the process of learning, students' innovative ability, language expression ability and analysis will be cultivated. The ability of realistic marketing phenomena and the ability of seeking solutions to marketing problems from multiple perspectives will enable students to be competent for theoretical research and marketing management work related to marketing after graduation.

Objective 1: Grasp the basic meaning of marketing and related concepts and understand the basic principles of marketing.

Objective 2: Master the methods of analyzing customers' purchasing behaviors, market research and target marketing strategy selection, and then have the ability to design and analyze marketing mix strategy based on marketing principles.

Objective 3: Master the methods of market research design and implementation, and have the ability to write high-quality market research reports.

The supporting relationship between curriculum objectives and graduation requirements is shown in Table 1.

TABLE I. SUPPORTING RELATIONS BETWEEN CURRICULUM OBJECTIVES AND GRADUATION REQUIREMENTS

Graduation requirements	Graduation Requirements Indicator	Supporting relationship between curriculum objectives and graduation requirements
Have solid basic knowledge and expertise, master the necessary research methods, and understand the latest developments and trends in international economy and trade and related fields.	Have the basic management knowledge and basic research methods needed to understand international economic and trade issues.	Curriculum objective 1
Communication and expression: Ability to communicate effectively with colleagues in the industry and the public on phenomena and problems in the field of international economy and trade in written and oral ways.	To be able to complete necessary economic research and analysis documents, including market research reports, research reports, academic year papers and graduation papers, aiming at the problems in international economy, trade and investment. To express professional views clearly, to put forward arguments and countermeasures, and to make statements, so as to better complete professional related defenses.	Curriculum objective 2 Curriculum objective 3

**B. Course teaching method**

- Classroom teaching

Firstly, case-based and heuristic teaching methods are adopted to stimulate students' interest in active learning, cultivate students' ability to think independently, analyze and solve problems, and guide students to acquire professional knowledge on the basic principles of marketing through practice and self-study.

Secondly, in terms of teaching content, teachers systematically teach basic theories, basic knowledge and basic methods of marketing, so that students can systematically grasp the basic knowledge of marketing, such as market research, market environment analysis and so on.

Thirdly, in the process of teaching, we use the network platform of high-quality courses, video materials, multimedia teaching and traditional blackboard writing to improve the amount of classroom teaching information and enhance the intuition of teaching.

Fourthly, we should give full play to the functions of provincial network platform of excellent resource sharing courses, guide students to browse the electronic resources of the network platform of courses, and improve the quality of learning.

• Experimental Teaching

Experimental teaching is an important practical part of this course. The purpose is to train students to use the method of marketing research to complete the design, implementation and report of marketing research. Six or so students are required to form a research group to complete the experimental content and submit the experimental report.

C. Course assessment

The main purpose of the course assessment is to assess the achievement of students'ability training objectives, and the important content is to check the students' mastery and application ability of each knowledge point, including three parts: normal assessment, experimental assessment and final assessment. The weight of each sub-goal in the evaluation of the overall goal of the course is different, and the corresponding assessment link of each sub-goal is also different. The usual assessment includes attendance, performance and homework. The experimental assessment includes experiment and the final assessment includes final examination. Correspondingly, the overall course assessment results are weighted by three parts: the usual assessment results, the experimental results and the final assessment results. Peacetime results, experimental results, final results and overall evaluation results are all percentage system. In the overall scores, grades, experiment result and the final result of the weight, respectively  $\lambda_1, \lambda_2$  and  $\lambda_3$ , including  $\lambda_1, \lambda_2$  and  $\lambda_3$  is according to the school regulations 0.2, 0.1 and 0.7 respectively (as shown in Table 2).

TABLE II. THE PROPORTION OF EACH ASSESSMENT LINK AND ASSESSMENT RULES

Composition and Proportion of Course Achievements	Assessment link	Target score	Assessment/evaluation rules	Corresponding curriculum objectives
Usual performance	Usual performance : 100 points ; The proportion of score is $\lambda_1$	Homework 50	It mainly examines students' review, understanding and mastery of knowledge points. The score is calculated by percentage, the average of each time score is taken, multiplied by the proportion it takes in the peacetime score and included in the peacetime overall evaluation score.	1
	$\lambda_1=0.2$	Attendance and performance 50	(1) Combining with the teaching progress, students' attendance and classroom performance are assessed, and students' mastery of relevant knowledge is examined. (2) The class performance score is calculated by the percentage, multiplied by its proportion in the peacetime score and included in the peacetime overall evaluation score.	1
Experimental results	Experimental results : 100 points ; The proportion of score is $\lambda_2$	Experiment 100	The score is calculated by percentage, the average of each time score is taken, multiplied by the proportion it takes in the peacetime score and included in the peacetime overall evaluation score.	3
	$\lambda_2=0.1$			
Final exam	Final exam : 100 point ; The proportion of score is $\lambda_3$	Final exam (1) 30	(1) The paper score is 100 points, which is multiplied by the proportion of the paper score in the total evaluation score. (2) It mainly assesses the basic definition of marketing and related concepts, marketing management, market demand measurement, marketing environment, customer purchase behavior, marketing research, target marketing strategy, marketing mix strategy. The test questions are multiple choice questions, noun explanations, short answer questions, marketing operation questions, marketing analysis questions, case questions, etc.	1
	$\lambda_3=0.7$	Final exam (2) 70		2

D. Evaluation Method of Achievement of Curriculum Objectives

The evaluation of the achievement degree of curriculum objectives includes the evaluation of the achievement degree of curriculum sub-objectives and the evaluation of the achievement degree of curriculum general objectives. The specific calculation methods are as follows:

$$\text{Achievement of curriculum objectives} = \frac{\text{Average scores of relevant assessment links supporting the objectives of the course}}{\text{Target total score of relevant assessment links supporting the curriculum objectives}}$$

$$\text{The overall achievement of curriculum objectives} = \frac{\text{The average score of students in this course}}{\text{Total score of the course (100 points)}}$$

The contents and descriptions of curriculum objective evaluation are shown in Table 3 and Table 4, respectively. The letters A, B, C and D indicate the actual average scores of students' homework, attendance and performance, experiment and final exam respectively. Among them,  $D = D_1 + D_2$ ;  $D_1$  is the exam score of target 1 in the final exam, and  $D_2$  is the exam score of target 2 in the final exam.

TABLE III. CURRICULUM OBJECTIVES EVALUATION CONTENT AND SYMBOLIC SIGNIFICANCE

Evaluation content of curriculum objectives	Homework	Attendance and performance	Experiment	Final exam		Overall curriculum evaluation
				Final exam (1)	Final exam (2)	
Target score	50	50	100	30	70	100
Average score of students	A	B	C	$D_1$	$D_2$	$\lambda_1(A+B)+\lambda_2C+\lambda_3D$

TABLE IV. EXPLANATION OF EVALUATION VALUE OF ACHIEVEMENT OF CURRICULUM OBJECTIVES

Curriculum objectives	Assessment link	Target score	Average score of students	Calculation of achievement of curriculum objectives
Curriculum objectives 1	Homework	50	A	Curriculum objectives 1= $[\lambda_1(A+B)+\lambda_2D_1]$ / Total score of actual objectives. The total score of actual objectives is divided into the total number of objective scores multiplied by weights.
	Attendance and performance	50	B	
	Final exam (1)	30	$D_1$	
Curriculum objectives 2	Final exam (2)	70	$D_2$	Curriculum objectives 2= $D_2/70$
Curriculum objectives 3	Experiment	100	C	Curriculum objectives 3= $C/100$
The overall achievement of curriculum objectives	Overall performance	100	$\lambda_1(A+B)+\lambda_2C+\lambda_3D$	The overall achievement of curriculum objectives = $[\lambda_1(A+B)+\lambda_2C+\lambda_3D]/100$

E. Assessment conclusion

According to the evaluation rules of course goal attainment, the course goal attainment was comprehensively evaluated at the end of the semester (as shown in Table 5).

TABLE V. RESULT OF EVALUATION OF ACHIEVEMENT OF CURRICULUM OBJECTIVES BY

Curriculum assessment information	Curriculum objectives	Usual performance : 100 points (20%)		Experimental results (10%)	Final exam :100 points (70%)		Overall curriculum evaluation	
	Support link	home work	classroom performance	objective 3	objective 1	objective 2		
	Average score of students	45.44	44.58	90.00	19.97	48.43		74.88
	Target score	50	50	100	30	70		100

Firstly, the evaluation scores of the achievement degree of curriculum objectives 1-3 are all greater than 0.7, of which curriculum objectives 1 achieves 0.78, curriculum objectives 2 achieves 0.69 and curriculum objectives 3 achieves 0.90. The evaluation results are as follows: curriculum objectives are achieved.

Secondly, through the data of achievement of each curriculum objective, it shows that the achievement degree of curriculum objective 2 is low. According to students'usual classroom feedback and final exam scores, it shows that students' ability to solve specific problems using marketing principles is relatively weak, and their ability of market research, customer analysis and marketing mix strategy analysis and design needs to be improved. In the future teaching, we will strengthen the cultivation of students'ability to analyze and solve problems, and increase the teaching hours and special exercises in class.

IV. CONCLUSION

To sum up, curriculum teaching is the most basic and important link in higher education teaching activities, and the achievement of curriculum objectives is the most important basis for judging whether the graduation requirements can be achieved and whether the professional training objectives can be achieved. Through the quantitative and qualitative analysis of students'learning achievement, we can find out the weak links in classroom teaching, put forward specific problems, reflect on classroom teaching effect, and formulate targeted improvement measures to ensure the continuous improvement of teaching quality.

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