



The Analysis of Student's Learning Outcomes Based on OBE Model:

Taking *An Introduction to Business* as an Example

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Abstract. Student's learning outcomes is the driving force in OBE education system, and it needed to be analysed in a scientific approach. This article takes the course *An Introduction to Business* as an example, and analyses student's learning outcomes under the guidance of OBE model. Through qualitative and qualitative analysis of students' formative and summative assessment scores, the framework of analysing student's' learning outcomes is constructed, which sheds light on how such an analysis approach may be best integrated into the OBE model.

Keywords: Outcomes Based Education (OBE); Intended Learning Outcomes (ILO); Formative Assessment; Summative Assessment

1 Introduction

Outcomes Based Education (OBE), also known as output-oriented, ability-oriented, goal-oriented or demand-oriented education, is an education concept oriented by students' learning outcomes. It was first proposed in 1981 by Spady, who aims to scientifically construct the education system and make it closely follow the goals of cultivating students (Spady 1994)¹

OBE is a structured model for organizing, implementing, and valuing education centered on Intended Learning Outcomes (ILO). Chandrama Acharya pointed out that there are four main steps to implement OBE education model, which is Defining, Realizing, Assessing and Using (Chandrama 2003).²

In an OBE education system, educators must have a clear vision of the competencies and levels students are expected to achieve upon graduation, and then seek to design appropriate educational structures to ensure that students achieve these desired goals. Student's learning outcomes rather than textbooks or teacher experience becomes the driving force in the education system (Malan 2000)³. This is in sharp contrast to the

traditional content-driven educational system. In this sense, OBE education model can be regarded as an innovation of education system (Dejager 2005)⁴.

OBE focuses on the development of students' abilities and the evaluation on the learning outcomes. Learning outcome refers to the maximum ability that students can achieve after a certain stage of learning, which can be served as feedback to improve the original teaching design and teaching implementation (Martin 2003)⁵.

However, few scholars have made the research on the assessment of students' learning outcomes under the guidance of OBE model. In this paper, *An Introduction to Business* will be taken as an example to provide a framework for teachers to follow while doing learning outcomes analysis.

2 Analysis

2.1 Introduction to the Course

An Introduction to Business is a core course for sophomores majoring in Business English. It mainly introduces the basic theories and knowledge of economics and management, business environment, business ethics and social responsibility, enterprise management, human resource management, and marketing.

2.2 Score Distribution of the Course

The course assessment is composed of formative assessment (50%) and summative assessment (50%). The score distribution of the students' formative and summative assessment can be found in Table 1 and Table 2.

Table 1. The Distribution of Formative Assessment

Class	Ave	Pass	<30	>=30
001	34.4	70.0%	30.0%	70.0%
002	35.4	92.9%	7.1%	92.9%
003	38.7	100.0%	0.0%	100.0%
004	36.4	96.3%	3.7%	96.3%
Total	36.1	89.2%	10.8%	89.2%

Table 2. The Distribution of Summative Assessment

Class	Ave	Pass	< 60	60-69	70-79	80-89	>=90
001	82.2	96.6%	3.5%	3.5%	24.1%	51.7%	17.2%
002	74.4	100%	0.0%	25.0%	50.0%	25.0%	0.00%
003	77.1	100%	0.0%	3.9%	57.7%	30.8%	7.7%
004	75.9	96.3%	3.7%	11.1%	59.3%	18.5%	7.4%
Total	77.5	98.2%	1.8%	10.9%	47.3%	31.8%	8.2%
MAX	96.00		MIN		53.00		

We can see from Table 1 and Table 2 that in terms of the formative assessment, the average score of the course is 36.1, and the pass rate is 89.2%. As for summative assessment, the average score is 77.5, the pass rate is 98.2%. Compared with the formative assessment, there is no significant difference. Through the comparison between classes, the pass rate of formative assessment of Class 1 is slightly lower, mainly due to the relatively low homework scores and test scores of Class 1.

2.3 Score Analysis Based on OBE Model

2.3.1 Framework for Analysis.

However, through the above traditional way of analyzing the scores, we can't know whether the students have achieved the desired goals of the course. Therefore, we designed a framework to analyze students' scores in order to know students' Intended Learning Outcomes (ILO).

We firstly decide the six ILOs under the framework of CDIO. CDIO is an innovative educational framework for producing the next generation of engineers. The framework provides students with an education stressing engineering fundamentals set in the context of Conceiving — Designing — Implementing — Operating (CDIO) real-world systems and products. The ILOs in this course are developed into six competences, as in Table3. Traditionally, teachers may analyze the average score, the highest and the lowest score in each class as in Table1 and Table 2. While in this course, the six competences are evaluated respectively with different methods and weights in formative assessment and the summative assessment, as in Table3 and Table4.

Table 3. The ILO in Formative Assessment

Intended Learning Outcomes (ILO)	Ways of Evaluation	Weight
ILO1: Understand the development trend of the globalized economy and the economic environment.	In-class Performance	3%
	After-class Homework	5%
ILO 2: Have business awareness and business ways of thinking. Understand corporate strategy and culture.	In-class Performance	4%
	After-class Homework	5%
ILO 3: Master the basic knowledge of business ethics and social responsibility, enterprise management, human resource management; Master the knowledge of business environment, and marketing; Be able to use relevant business knowledge to analyze cases.	In-class Quiz	20%
ILO 4: Be able to search and select materials and documents on the Internet effectively.	—————	
ILO 5: Be able to make work plan and work effectively as a team; Propose suggestions or solutions to improve workflow of the team during operation.	In-class Performance	3%
	After-class Homework	5%
ILO 6: Be able to business case analysis.	After-class Homework	5%

Table 4. The ILO in Summative Assessment

Intended Learning Outcomes (ILO)	Competency	Weight
ILO 1: Understand the development trend of the globalized economy and the economic environment.	Business Environment Analysis	10%
ILO 2: Have business awareness and business ways of thinking. Understand corporate strategy and culture.	Business Awareness and Business Ways of Thinking	10%
ILO 3: Master the basic knowledge of business ethics and social responsibility, enterprise management, human resource management; Master the knowledge of business environment, and marketing; Be able to use relevant business knowledge to analyze cases.	Basic Business Knowledge	30%
ILO 4: Be able to search and select materials and documents on the Internet effectively.	Business plan writing	30%
ILO 5: Be able to make work plan and work effectively as a team; Propose suggestions or solutions to improve workflow of the team during operation.	Teamwork	10%
ILO 6: Be able to business case analysis.	Case Analysis	10%

2.3.2 Analysis of Summative Assessment.

We take summative assessment as an example to illustrate the calculation process of students' learning outcomes. The summative assessment of this course is to write a business proposal about the company students have researched and present it with PPTs. It mainly tests whether students have grasped the basic business knowledge and apply the knowledge into practice.

Students' performance is evaluated according to six competencies, including Business Environment Analysis, Business Awareness and Business Ways of Thinking, Basic Business Knowledge, Business Plan Writing, Teamwork, and Case Analysis. For each competency, the scoring criteria is described in details. Every student's performance is evaluated strictly following the scoring criteria. Part of the assessment can be seen in Figure 1. The average score can be calculated for each competency, which is the detailed description of the learning outcomes of the students. Then, the average score is divided by the total score for this competency, which in this case is 10.

Name		Wang	Xiao	Wu	Qiao	Liu
Business Environment Analysis (10)		8.0	10.0	10.0	10.0	10.0
Business Awareness & Business Ways of Thinking (10)		8.0	9.0	9.0	8.0	9.0
Business Plan Writing	Content (10)	7.0	7.0	10.0	7.0	9.0
	Language (10)	7.0	8.0	9.0	8.0	8.0
	Organization (10)	7.0	7.0	10.0	7.0	7.0
Basic Business Knowledge	Enterprise Management (10)	9.0	9.0	10.0	9.0	9.0
	HR Management (10)	8.0	9.0	10.0	9.0	9.0
	Business Environment (10)	7.0	9.0	9.0	9.0	7.0
Teamwork (10)		7.0	7.0	9.0	7.0	7.0
Case Analysis (10)		7.0	8.0	8.0	8.0	8.0
Total (100)		75.0	83.0	94.0	82.0	83.0

Fig. 1. Scoring in Summative Assessment

We can interpret the learning outcomes of the students as follows: the ILO1 index is 77%, this shows that students can basically understand the development trend of the global economy and the economic environment; the ILO2 index is 76%, the further analysis shows that the students generally have business awareness and business ways of thinking and can understand corporate strategy and culture in a broad sense, but they need to view problems from a developmental, holistic perspective; the ILO 3 index is 77%, which means students can master basic knowledge of business ethics and social responsibility, enterprise management, human resource management; can master the basic business environment knowledge (evaluation of the economic situation, the basic concept of globalization and the pros and cons of globalization), marketing, and can apply the related business knowledge to do case analysis; the ILO4 index is 78%, the further analysis finds out that students have basically mastered the methods of searching and selecting materials and documents while writing business plans, but they still need to improve the questionnaire design of business plans; the ILO5 index is 72%, telling us that students are able to make work plans and carry out corresponding tasks on the basis of teamwork and communication; the ILO6 index is 82%, which shows students can use relevant knowledge to conduct business case research and analysis, the collection of primary data is not satisfying. The formative assessment can also be analyzed following this way. The ILO of the course in formative assessment and summative assessment can be found in Table 3 and Table 4.

3 Conclusion

Following the analysis of the ILO, we can reflect on the teaching and learning process and put forward some suggestions so as to further improve our teaching and learning. The reflections and suggestions are listed as follows:

Firstly, we can know from the data analysis result that students haven't fully mastered the basic knowledge. Since this course is a new one and the first business course for students, different from the language class, business course take language as a tool to understand the business world. Therefore, it is necessary for students to preview the textbook in advance. If a student can't finish reading 40-50 pages of textbook before class, it is quite possible that he or she feels hard to keep pace with the teacher in class.

Secondly, the data analysis shows that competency involves with practice is relatively low comparing with other competencies. Some possible measures can be taken, such as visiting enterprises, analyzing the latest cases, participating in forums given by entrepreneurs, learning from enterprise mentors.

In conclusion, the score analysis framework in this study can be served as an effective tool when analyzing students' learning outcomes. Therefore, teachers need to have a clear vision about students' ILO, and then use appropriate methods to analyze the competencies in both formative and summative assessment. Teachers are suggested to follow the above process and make a detailed and objective analysis of the scores so as to carry out personalized student assistance according to the feedback from the students' learning outcomes.

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