

Research on the Learning Evaluation of Supply Chain Management Course in Application-oriented Universities Based on OBE

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Abstract: The learning evaluation of course is very important in the education system, which is not only a measure of students' learning achievements, but also an important feedback of teaching quality and effect. Under the background of new business, we take the course of supply chain management as the research object, and based on the concept of OBE, deeply analyze the problems existing in the learning evaluation of this course in the current application-oriented universities. In view of these problems, we put forward some suggestions for improvement: strengthening the examination link of virtual experiment operation, promoting diversified examination methods, and clearly defining evaluation standards. The purpose of this study is to provide valuable reference and enlightenment for the learning evaluation reform of supply chain management courses in application-oriented universities.

Keywords: OBE; Supply Chain Management Course; Learning Evaluation; Teaching Reform; Ability Training.

1. Introduction

With the rapid development of globalization and informatization, supply chain management has become an important part of enterprise operations (Liu, 2023). At the same time, with the development of new formats and new business models, enterprises require supply chain management talents not only to be familiar with supply chain management knowledge, but also to have good practical application ability and comprehensive quality of problem-solving skills (Ma, 2023). Therefore, for application-oriented colleges and universities, the supply chain management course not only requires students to master theoretical knowledge, but also attaches importance to the cultivation of their practical application ability. However, the traditional learning evaluation system often focuses on the assessment of theoretical knowledge and ignores the evaluation of students' practical ability. The concept of Outcome-based Education (OBE) is an educational model that takes learning achievements of students as the center and emphasizes results-oriented, student-oriented and reverse design (Wang and Tang, 2024; Jin et al, 2024). It requires educators to pay attention not only to what to teach and how to teach, but also to what students have learned and whether they can apply what they have learned to practice. The educational model under the concept of OBE makes the post ability of talents more suitable for the development of the times. Therefore, it is necessary to introduce the OBE to reform and explore the learning evaluation of the supply chain management course.

At present, many scholars have introduced the concept of OBE into the research of learning evaluation reform. For example, Lai (2023) built a leaning evaluation system of anesthesia practice teaching based on the OBE concept, implemented multi-dimensional evaluation of anesthesia practice stage, and paid attention to the combination of formative evaluation and summative evaluation. Jiang et al. (2024) aimed at the problems existing in the learning

evaluation system of the comprehensive practice course for mechanical and electronic engineering specialty, designed a new multi-level and diversified learning evaluation system mechanism of the comprehensive practice course based on OBE reverse design. Based on the OBE concept, Xiao and Kang (2024) constructed a mixed learning evaluation system with the evaluation principles of orientation, diversity, development and difference according to the teaching process, and took the course of PLC application and design as an example to clarify the evaluation object, evaluation subject and evaluation index of the mixed evaluation system. Han and Zhu (2024), relying on the Sino-German advanced vocational education SGAVE project, aimed at the automobile operation and maintenance major and based on the concept of OBE, explored the method of classroom teaching process evaluation. In view of the difficulties existing in the evaluation of teaching process of higher vocational courses, Li et al. (2024) established an online interactive evaluation system of "double objects and whole process" under the guidance of OBE and the advantages of SPOC platform. Although the concept of OBE is introduced into the learning evaluation reform, the supply chain management course with it is not specifically discussed.

At the same time, some scholars who teach the supply chain management course have also begun to study the teaching reform under the OBE concept. For example, Wang (2022) introduced the OBE concept, focused on the actual needs of society for talents, constructed the teaching design framework of supply chain management course based on OBE, and put it into practice. Zhao and Wang (2022) took the supply chain management course as an example, and on the basis of clarifying the connotation of the OBE concept and blended teaching, combined with the actual teaching situation of the supply chain management course, put forward the feasible strategies to realize blended teaching in the course from the perspective of the OBE concept. Yao et al. (2024) took students as the center and results as the guidance, and

developed the first-class course construction of supply chain management from three aspects: teaching content, practical teaching and teaching methods. Li (2024), taking the logistics management major in a higher vocational college as an example, tried to explore the practical problems of supply chain management course in talent ability training under the OBE concept. Taking supply chain and logistics management course as an example, based on the OBE concept, Li et al. (2023) explored the teaching innovation practice under the background of “new liberal arts”. Although these studies have integrated the OBE concept into the teaching reform of the supply chain management course, there is still a lack of concrete and in-depth combing and discussion on the learning evaluation of this course.

Therefore, this paper takes the learning evaluation of supply chain management course as the research object, analyzes the problems existing in the current evaluation of courses in application-oriented universities from the OBE concept, and puts forward targeted improvement suggestions, aiming at optimizing the learning evaluation system and improving the teaching quality.

2. Problems Existing in the Learning Evaluation of Supply Chain Management Course in Application-Oriented Universities

2.1. The Evaluation Content is Theoretical and Divorced from Practice

At present, the evaluation content of supply chain management course is largely focused on theoretical knowledge, covering the core contents of supply chain management, such as basic concepts, design principles, inventory management strategies and demand forecasting methods. Although these theoretical contents are crucial to the construction of students' knowledge system, they are often abstract and divorced from reality, lacking close connection with specific practical operations. This evaluation model tends to require students to master and memorize theoretical knowledge, but ignores the cultivation of practical operation and application ability. Therefore, although students can skillfully recite and understand the theoretical knowledge, when faced with practical supply chain management problems, they often feel at a loss to turn what they have learned into the ability to solve practical problems. Although some application-oriented universities have realized the importance of practical application, and incorporated practical links such as case analysis and enterprise simulation training into their courses, the proportion of these practical contents is still relatively low, and these practical links have not been put into the actual learning evaluation system.

2.2. The Evaluation Method is Single and Lacks Diversification.

In view of the fact that the evaluation content of the current supply chain management course is theoretical, the corresponding evaluation methods are also relatively simple, mainly limited to the traditional closed-book examination and open-book examination. This evaluation method is difficult to comprehensively and deeply evaluate students' comprehensive ability and quality, especially their performance in practical operation. The OBE concept pays attention to the cultivation of students' practical operation

ability, and requires supply chain management talents to be able to apply what they have learned to practical problem solving through practical projects and case analysis. Therefore, it is very important to evaluate students' practical operation and practical problem-solving ability in the evaluation process. However, the current lack of diversified evaluation methods makes the evaluation results not objective and comprehensive, and it is difficult to reflect the goal of OBE talent training.

2.3. The Evaluation Criteria are Not Clear and Subjective

At present, clear evaluation criteria have been established for the evaluation of the theoretical knowledge content of supply chain management courses. However, in the evaluation of practical operation content, there is a general lack of specific and clear evaluation criteria. Teachers mainly rely on personal subjective preferences, accumulated teaching experience and feelings of students' intuitive ability to evaluate the effectiveness of students' practical operation, which makes the evaluation result is subjective. This not only affects the fairness and objectivity of the evaluation results of practical operation, but also may dampen students' enthusiasm and self-confidence, which is not conducive to their overall improvement of practical ability.

3. Suggestions on the Reform of the Learning Evaluation of Supply Chain Management Course based on OBE

In view of the problems existing in Section 2, under the framework of OBE, the learning evaluation content of supply chain management course should focus on the deep integration of theoretical knowledge and practical application. At the same time, it should enrich the diversity of evaluation forms and establish clear and specific assessment standards.

3.1. Strengthen the Examination of Virtual Experiment Operation

The evaluation content of supply chain management course should attach importance to the combination of theoretical knowledge and practical application. In view of this, it is suggested that the evaluation content of virtual experiment operation should be included in the evaluation system, aiming to let students experience all aspects of supply chain management personally through highly simulated business environment simulation. This evaluation design can not only deepen students' understanding of theoretical knowledge, but also effectively improve their practical experience and problem-solving ability in the real business environment. At present, according to the requirements of practical positions for supply chain management talents, the teaching content of supply chain management course mainly focuses on the knowledge of suppliers and procurement management, supply chain logistics planning and scheme design, demand and inventory, supply chain system coordination and optimization, etc (Li, 2023). Therefore, this paper proposes to increase the related experimental operation evaluation contents, such as the procurement bidding game and the Logicnet planning experiment, as shown in the following table 1.

Table 1. Evaluation content of experimental operation

No.	Teaching knowledge points	Evaluation of experimental operation
1	Supplier and procurement management	Procurement bidding meeting game
2	Supply chain logistics planning and scheme design	LogicNet planning experiment
3	Demand and inventory	Beer game
4	Coordination and optimization of supply chain system	Supply chain risk sharing experiment

3.2. Design Diversified Assessment Methods

Based on the concept of OBE, we emphasize student-orientation, focus on cultivating students' practical application ability, and consider diversified assessment forms and timely and dynamic periodic assessment needs to build a more reasonable and perfect course learning achievement evaluation system. The diversified evaluation forms set in this paper include the "2+2+1" evaluation model with five dimensions, namely, subject competition, experimental operation, theoretical test, study report and defense, and routine assessment and classroom performance (see Figure 1 for details).

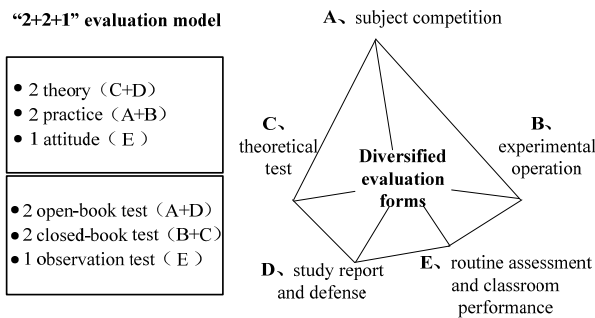


Figure 1. "2+2+1" diversified evaluation model

Subject competitions include the National Supply Chain Management Innovation Design Competition, the National College Students' Command Supply Chain Innovation and Entrepreneurship Challenge, the National Supply Chain Procurement Simulation Competition and the National College Students' Logistics Simulation Design Competition. The experimental operation mainly includes the contents described in Section 3.1. Theoretical test is a traditional closed-book test aimed at the core theoretical knowledge of supply chain management, such as basic concepts, design principles, inventory management strategies and demand forecasting methods. Learning report and defense are students' in-depth learning by using books, network resources and other learning channels independently according to the preview tasks set by teachers before class. Later, in class, students need to report their own learning achievements and answer the relevant questions raised by teachers. The routine assessment and classroom performance mainly include classroom attendance, homework completion and classroom participation in discussion. In addition, the timely and dynamic periodic evaluation is carried out according to the completion time of the course content module and the competition time node of the national supply chain management related disciplines competition.

3.3. Define a Scientific and Objective Evaluation Criteria

In the learning evaluation of supply chain management course, it is very important to clarify the evaluation criteria and ensure its scientific objectivity. This can not only ensure the fairness of the evaluation, but also effectively measure the students' learning achievements and the teaching quality of the course. This paper puts forward corresponding suggestions for the five types of evaluation methods in 3.2 to help clarify the evaluation criteria and realize scientific and objective evaluation of supply chain management courses. (1) For the evaluation of subject competitions, the evaluation criteria should be set by comprehensively considering the students' award winning, the enthusiasm of participating in the competition, the degree of preparation for the competition, the performance during the competition and the reflection and summary after the competition. (2) For the evaluation of experimental operation, we should comprehensively consider the correctness of hissing experimental operation, the processing ability and computing ability of experimental data, the timeliness of experimental operation, the ability to solve problems in the experimental process, the attitude and discipline of the experiment, and the writing quality of experimental reports. (3) For theoretical test evaluation, the criteria are mainly set according to the scores of test questions. (4) For the evaluation of learning report and defense, the criteria should be set according to the quality of the report and the expression and logic of the report or defense. (5) For usual attendance and classroom assessment, evaluation criteria should be set based on students' attendance, classroom participation, homework performance, learning attitude and discipline. Generally speaking, in terms of evaluation criteria, various factors should be considered comprehensively to ensure the comprehensiveness and fairness of evaluation.

4. Conclusion

Under the background of new business, the ability of supply chain management talents is increasingly demanded by enterprises. These requirements not only cover the familiarity with supply chain management knowledge, but also require sufficient post operation skills and problem-solving ability. Based on the concept of OBE, this paper analyzes the problems existing in the learning evaluation of Supply Chain Management course in application-oriented universities at present, and puts forward corresponding reform suggestions.

Curriculum evaluation plays a vital role in the curriculum system, which is not only a measure of students' learning achievements, but also an important feedback to the teaching quality and effect of the whole curriculum. At present, there are many problems in the learning evaluation of supply chain management courses in application-oriented universities, such as theoretical evaluation content, single evaluation method and unclear evaluation criteria. Therefore, by adding virtual experiment evaluation contents such as procurement bidding games and LogicNet planning experiments, a diversified evaluation model of "2+2+1" is set up, and the evaluation criteria are defined, so as to promote the evaluation of supply chain management courses to better meet the actual needs of posts. Only by keeping up with the times and reasonably adjusting the evaluation system of supply chain management course can we ensure the practicality and foresight of the course teaching and meet the changing market

demand.

Acknowledgments

We graciously acknowledge the helpful comments of the Editor and the anonymous reviewers. This research is supported by the Fund Project of the Teaching Reform and Research of Logistics in National Universities and Vocational Colleges in 2023, the Teaching Steering Committee of Logistics Management and Engineering Specialty in Colleges and Universities of Ministry of Education of China (Grant No. JZW2023383), and the Research Funds of Higher Education Teaching Reform Project of Lingnan Normal University in 2023, (Grant No. 3 of the Promoting Business Discipline Category).

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