

Research on the Evaluation of VBSE Practical Training Teaching Effectiveness Based on CIPP Model at X University

Sisi Chen, Lingzhi Liao*

School of Economics and Management, Southwest Forestry University, Kunming 650224, Yunnan Province, China

*Corresponding author: Lingzhi Liao, winner0720@126.com

Copyright: © 2023 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: Based on the CIPP (context, input, process, and product) model, this paper constructs an index system suitable for evaluating the teaching effect of VBSE (virtual business social environment) practical training from four aspects: context evaluation, input evaluation, process evaluation, and product evaluation. Taking the students participating in VBSE practical training in X university as the survey population, 381 valid sample data were obtained through an online questionnaire survey, and the index weights were determined by factor analysis method. The score value of the VBSE practical training teaching effect was calculated based on the evaluation mean value of three indexes. The results showed that the context evaluation score was 1.56, the input evaluation score was 1.54, the process evaluation score was 1.51, and the product evaluation score was 1.48. Subsequently, this paper put forward some countermeasures from the aspects of optimizing course arrangement, improving hardware facilities, and enhancing team cooperation to provide a guideline for improving the effect of VBSE practical training.

Keywords: VBSE practical training teaching; CIPP model; Teaching effect evaluation

Online publication: December 25, 2023

1. Introduction to the CIPP model

The CIPP (context, input, process, and product) model is an evaluation model that improves performance accountability and was proposed by American scholar Stufflebeam in 1966 at the Ohio State University Educational Evaluation Center after years of research. This model was developed during the education reform movement in the United States based on criticism of Taylor's target evaluation model. Stufflebeam divided the evaluation process into context, input, process, and product evaluations^[1]. Contextual evaluation is an assessment of needs, problems, resources, and opportunities in a specific environment. Based on the background evaluation, input evaluation evaluates the conditions, resources, and relative advantages of each alternative plan required to achieve the goal. Its essence is to judge the feasibility and effectiveness of the plan. Process evaluation is the continuous supervision, inspection, and feedback during the plan's implementation. Outcome evaluation is an evaluation of the degree to which goals are achieved, including measurement,

judgment, explanation of the degree to which the program's achievement aligns with verification needs, etc. ^[2].

Since this model can provide managers with different information for decision-making, it is also called a decision-oriented evaluation model. The CIPP model was first applied to teaching evaluation and then gradually expanded to other fields ^[3].

2. Construction of a teaching effect evaluation index system for VBSE (virtual business social environment) practical training

Based on the CIPP evaluation model, the article creates four dimensions for evaluation, including background evaluation, input evaluation, process evaluation, and outcome evaluation as the core and evaluation system, and six secondary indicators such as "training background" and "site equipment" and 17 third-level indicators.

2.1. Background evaluation

The development of VBSE (virtual business social environment) teaching in colleges and universities requires solid support. Background evaluation is a diagnostic evaluation of teaching objectives, priorities, and attitudes in the practical teaching environment of colleges and universities. The article uses "practical training background" as a secondary indicator to measure the VBSE teaching background environment in colleges and universities. When evaluating the "practical training background," it is reflected through five three-level indicators: training goals, importance, knowledge matching, learning interest, and teaching planning.

2.2. Input evaluation

Input evaluation is an evaluation of resource investment and an assessment of the feasibility of practical teaching. For practical teaching, venue equipment and teachers are the most critical resources. Education is like a fish that cannot live without water. Teaching cannot be carried out without proper venue equipment and a strong team of teachers. The article uses "field equipment" and "teaching staff" as secondary indicators to measure the investment in VBSE teaching resources in colleges and universities.

2.3. Process evaluation

Process evaluation is dynamic and feedback-oriented, which helps to understand the implementation of practical teaching in real-time and provide timely feedback to improve the quality of teaching. The article uses two secondary indicators, "practical process" and "teacher guidance," to measure the practical process of VBSE teaching in colleges and universities.

2.4. Outcome evaluation

Outcome evaluation includes formative evaluation, which is used to evaluate the formation process of teaching effectiveness, and summative evaluation, which is used to evaluate the results of the entire practical training process. Outcome evaluation aims to verify and improve the teaching, that is, to measure whether the training objectives are achieved and to analyze the training results to obtain feedback on the teaching effect and provide a basis for course improvement. The article uses the secondary indicator "teaching effect" to measure the effect of VBSE teaching in colleges and universities.

3. Empirical analyses of VBSE practical training teaching effect evaluation

3.1. Data source

A data survey was carried out based on the indicators. From December 10, 2021 to February 1, 2022, the online questionnaire link designed by X University was sent to each class group that had completed the VBSE training. Students voluntarily filled in and submitted the questionnaire. In the end, a total of 381 valid questionnaires were returned.

3.2. Sample overview

The samples participating in the survey were students from the School of Economics and Management and the School of Accounting of X University. The survey data showed that males accounted for 18.9% of the total sample, while females accounted for 81.1%. Regarding major distribution, accounting majors accounted for 35.7%, financial management majors accounted for 15.2%, business management majors accounted for 16.5%, e-commerce majors accounted for 15.0%, and agricultural and forestry economic management majors accounted for 17.6%. In terms of the organization where the sample positions are located, manufacturing companies accounted for 69.3% of the total sample, dealers accounted for 11.8%, industrial and trade companies accounted for 12.3%, logistics companies accounted for 0.5%, Industrial and Commercial Bank of China accounted for 0.8%, taxation bureaus accounted for 1.3%, and industrial and commercial bureaus accounted for 1.0%, the Social Security Bureau accounts for 0.8%, and service companies account for 2.1%. The sample covers all majors participating in practical training and all types of organizations. The data is representative and can be used for analysis.

3.3. Index score results at all levels

Firstly, the principal component score coefficients were normalized based on the rotated factor matrix to obtain the index weight. The evaluation levels for each evaluation term were strongly agree, somewhat agree, fair, somewhat disagree, and strongly disagree, with the corresponding scores of 1, 2, 3, 4, and 5. The score of each indicator was obtained by multiplying the weight of each indicator by the mean of each indicator. The results are shown in **Table 1**, where the comprehensive scores of the four first-level indicators were 1.56 points, 1.54 points, 1.51 points, and 1.48 points. The overall scores of the four first-level indicators are all between strongly agree and somewhat agree. It can be seen that X University's VBSE practical training teaching effect is generally good. In terms of background evaluation, the scores of knowledge matching and teaching planning are 1.63 and 1.60, respectively, which are higher than the comprehensive score of 1.56; In terms of input evaluation, the scores of hardware facilities and related software are 1.67 and 1.54, respectively, which are higher than or equal to the comprehensive score of 1.54; In terms of process evaluation, the scores for teamwork and overall feelings were both 1.54, which was higher than the overall score of 1.51.

Table 1. Score table of indicators at various levels

First-level indicator	Secondary-level indicators	Overall ratings	Third-level indicators	The weight of third-level indicators (%)	Mean	Score
Background evaluation	Training background	1.56	Training objectives	14.72	1.54	0.23
			importance	16.62	1.52	0.25
			Knowledge matching	6.92	1.63	0.11
			Learning interest	27.41	1.54	0.42
			Teaching planning	34.33	1.60	0.55

Table 1. (Continued)

First-level indicator	Secondary-level indicators	Overall ratings	Third-level indicators	The weight of third-level indicators (%)	Mean	Score
Input evaluation	Venue equipment	1.54	Hardware facilities	47.72	1.67	0.80
			Related software	40.09	1.54	0.62
			Education resources	2.86	1.49	0.04
	Teachers		Number of teachers	2.90	1.46	0.04
			Teacher experience	2.74	1.48	0.04
Process evaluation	Practical process	1.51	Teamwork	36.87	1.54	0.57
			Overall feeling	35.02	1.54	0.54
	Teacher guidance		Guidance process	13.43	1.48	0.20
			Test results	14.67	1.45	0.21
Outcome evaluation	Teaching effect	1.48	Occupational position awareness	36.07	1.48	0.53
			Comprehensive quality	52.97	1.48	0.79
			Satisfaction	10.96	1.47	0.16

4. Strategies to improve the effectiveness of VBSE practical training teaching

4.1. Optimizing course arrangements

In the background evaluation, students' evaluation of matching knowledge and teaching planning is not ideal. Therefore, to match professional knowledge, schools should enrich students' knowledge in professional courses as much as possible to better match the needs of virtual enterprise job capabilities. Based on students' expectations for participating in VBSE practical training courses, teachers should introduce the content of VBSE practical training courses to students before the course is launched to stimulate students' interest and expectations. According to the rationality of the opening semester of VBSE practical training teaching, students' course schedules will be adjusted appropriately. For example, VBSE practical training courses can be arranged after professional classes so that students can better apply theoretical knowledge to practice. Regarding the rationality of allocating VBSE practical training course hours, schools should promptly assess students' performance in practical training and adjust the class hours. In addition, schools can also consider investigating classes that have already undergone practical training, fully taking students' opinions into account, and optimizing and adjusting class hours. In short, through these targeted improvement measures, the quality and effect of VBSE practical training teaching can be further improved.

4.2. Enhancing hardware facilities

In the input evaluation, students' evaluation of the hardware facilities and related software was less than ideal. Therefore, we should focus on improving these hardware facilities to promote the improvement of teaching effects. Regarding the laboratory area, as the number of practical training classes increases, certain requirements for the laboratory size are put forward. To ensure that the laboratory can accommodate an appropriate number of students, the school can control the number of students for practical training and conduct practical training in batches. Regarding the computer and screen projection in the laboratory, problems such as computer freezing, aging, and loose cables exist, which require a higher frequency of maintenance. Maintenance personnel should regularly check and maintain computer equipment to ensure the normal conduct of practical training.

For laboratory network problems, frequent network freezes will affect the progress of the course. Upgrade of the network system by professional and technical personnel can ensure the smooth progress of the training. Moreover, many students are not familiar with the use of printers, especially in positions that require frequent use of printers. In pre-class guidance, teachers can select one student from each group to teach printing and photocopying to improve overall usage efficiency. In addition, to meet the needs of practical training, the school should provide a sufficient number of printers. For microphone issues, teachers should adjust the microphone volume before class to ensure that all students can hear the teaching content. To avoid problems with the usage of software during practical training, the school should arrange for software testing before class and continuously optimize the software system to improve the efficiency of practical training. Teaching quality and student experience can be further enhanced through these targeted improvements.

4.3. Improving team collaboration capabilities

Students' evaluation of the teamwork process and overall feelings was unsatisfactory in the process evaluation. Regarding the team collaboration process, we can take the following improvement measures. Firstly, the chief executive officer (CEO) selection system is improved. Certain assessments and screenings should be conducted for students who serve as CEOs before class to ensure that they have suitable abilities and qualities. Secondly, the CEO's work distribution is optimized with more important tasks given to the CEO, thereby promoting the cultivation of hands-on skills and increasing participation, helping the team work better together. To ensure the smooth progress of the practical process, we should strengthen the cultivation of mutual help and cooperation among students, and encourage students to communicate more actively to establish a positive team atmosphere. This will improve the performance of practical training and ensure the smooth progress of the actual operation process. By implementing these targeted improvement measures, team collaboration and the overall experience are expected to be further enhanced, thereby improving the quality of practical training and teaching.

Funding

2022 Southwest Forestry University Educational Science Research Project - General Project "Research on the Evaluation of VBSE Practical Training Teaching Effects Based on CIPP Model" (Project number: YB202227)

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Stufflebeam DL, 1971, The Use of Experimental Design in Educational Evaluation. *Journal of Educational Measurement*, 1971(4): 267–274.
- [2] Xiao Y, 2003, Analysis of CIPP Education Evaluation Model. *Educational Science*, 2003(03): 42–45.
- [3] Cao Z, 2020, Research on Evaluation and Improvement Strategies of Entrepreneurship Education Capabilities in Colleges and Universities - Practice and Prospects Based on Guizhou. *Journal of Guizhou Normal University (Social Science Edition)*, 2020(03): 45–54.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.