Influencing Mechanism and Factors of Case Teaching in Management Majors under the Concept of OBE (Outcome-based education) : Empirical Analysis of Survey Data from Applied Universities Based on AMOS Structural Equation

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Abstract: Case teaching is one of the main forms for implementing the concept of OBE (Outcome-Based Education) in management majors. Based on the relevant research conclusions of other experts and scholars, this paper constructs a model of the influencing mechanism and factors of case teaching under the concept of OBE using AMOS software, and conducts an empirical analysis with students of management majors in applied universities as the survey subjects. The results indicate that under the current teaching system, the simulation adaptability of cases, i.e., the quality of selecting and organizing case content, is the most important factor affecting the effectiveness of case teaching in management majors of such universities. The willingness and attitude towards case study have a relatively minor impact on learning outcomes, suggesting that students still lack initiative in case studies. The organizational guidance of the case teaching process has no significant impact on the effectiveness of case studies but can influence student evaluations of the teaching process.

Keywords: OBE Concept; Case Teaching; AMOS Structural Equation; Applied Universities

1. Introduction

In the 1920s, Harvard Business School pioneered the case teaching method, applying it to business management education. Since then, this method has gained widespread adoption in universities worldwide and has become a vital form of classroom instruction, known for its positive educational outcomes. Meanwhile, the concept of Outcome-Based Education (OBE), which originated in North America in the 1980s and later spread to countries such as the United States and Australia, has also found widespread application in China's training of applied talents in recent years.

The relationship between OBE and case teaching can be understood as one of concept and application: OBE represents a broader educational philosophy, while case teaching is an effective method to implement this philosophy. The effectiveness, mechanisms, and various aspects of case teaching have already been the subject of extensive research, providing a solid foundation for its application.

The effectiveness or learning outcomes of case-based teaching are exactly the goals that the OBE philosophy aims to achieve. For example, Fu's empirical research demonstrates that case teaching is more effective than traditional methods in enhancing MBA students' "analytical and decision-making skills", "information collection and organization skills", "logical thinking abilities", and "interpersonal communication skills".[1] Similarly, Liu and Guan, using principal component analysis and the Analytic Hierarchy Process (AHP), have shown that case teaching fosters not only competency development but also career advancement. [2] Furthermore, Bi suggests that the core competencies expected from graduates include "knowledge construction abilities", "management practice abilities", and "communication and collaboration skills". In the context of OBE-based case teaching, the key learning effectiveness should include "the ability to understand and reconstruct management knowledge", "the ability to creatively analyze, identify, and solve practical management problems", and "the cultivation of professional qualities related to strategic implementation and teamwork"[3].

Empirical research by Dai and Zhu has examined the transfer mechanisms in case teaching. They argue that case teaching enhances the transfer of management knowledge and stimulates students' desire for active learning. The effectiveness of knowledge transfer in case teaching is influenced by several factors, including students' willingness to learn, the contextual simulation of the case, and the equality of the teacher-student relationship in the classroom. [4] Similarly, Guo et al. used structural equation modeling to analyze how individual student characteristics, expectations for case analysis, and preferences for case topics affect students' attitudes toward case teaching. Their findings indicate that the effectiveness of case teaching (which is positively correlated with students' attitudes) is primarily influenced by the topic of the case, and that students' preferences for case topics are directly shaped by their individual characteristics (such as academic year). In other words, students' personal traits ultimately affect the effectiveness of case teaching [5]. Further research by Shi et al. investigated learning barriers among Chinese college students in case teaching. They discovered that individual traits such as academic year and gender influenced the degree of psychological barriers and information processing difficulties. Additionally, barriers related to teamwork and teacher guidance varied depending on the academic discipline and the students' individual characteristics, all of which impacted the overall effectiveness of case teaching. [6]

Both Chinese and international research on case teaching under the OBE philosophy consistently suggests that its effectiveness is influenced by several factors: students' personal characteristics, willingness to learn, the teaching process and methods, the equality between teachers and students, and the appropriateness and typicality of the case itself. Therefore, teaching models, content systems, and resource development should be designed based on these findings [7-13]. In China, empirical studies on case teaching have primarily focused on MBA students or traditional undergraduate students who are more academically oriented (with much of the research being conducted before 2013). However, in 2014, the Chinese government emphasized the need to strengthen the training of applied talents, with the Ministry of Education outlining a strategy to guide a group of undergraduate universities to transition into applied technology institutions. Applied technology universities emphasize practical "application" and aim to cultivate highly adaptable, competitive, and high-quality applied talents, aligning with the OBE philosophy. The significance of case teaching under the OBE philosophy for undergraduate students in applied management programs is comparable to its importance for MBA students. However, the depth and degree of case analysis for these students differ from those in MBA programs. Empirical research on case teaching for applied management undergraduates is critical for the reform of applied undergraduate education. Understanding the influence mechanisms and related factors in this specific context, as well as revealing the underlying principles, is of great importance for the substantial transformation of general undergraduate institutions into applied universities. It also plays a crucial role in the widespread adoption and effectiveness of the OBE philosophy in applied higher education.

2. Analytical Framework

In their study on the Mechanisms of Knowledge Transfer in Case Teaching, Dai and Zhu empirically concluded that factors such as the contextual simulation of cases, the equality between teachers and students, and students' willingness to learn significantly impact the effectiveness of knowledge transfer in case teaching. This relationship is illustrated in Figure 1.

Building upon the findings and viewpoints of this research, the present study develops a model for further analysis. The new model incorporates these key conclusions while also hypothesizing that the teaching process and the equality between teachers and students influence the adaptability and simulation quality of the model. This aligns with the OBE philosophy, which places great emphasis on the process and the leading role of teaching methods. Additionally, some of the relationships between latent variables are assumed to differ from those in the original model. These differences could potentially result in varying linear coefficients within the framework of AMOS structural equation modeling, as illustrated in Figure 2.

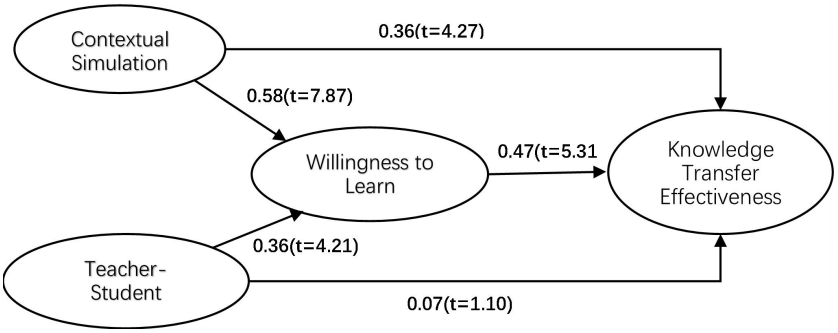


Figure 1. Mechanisms of Knowledge Transfer in Case Teaching

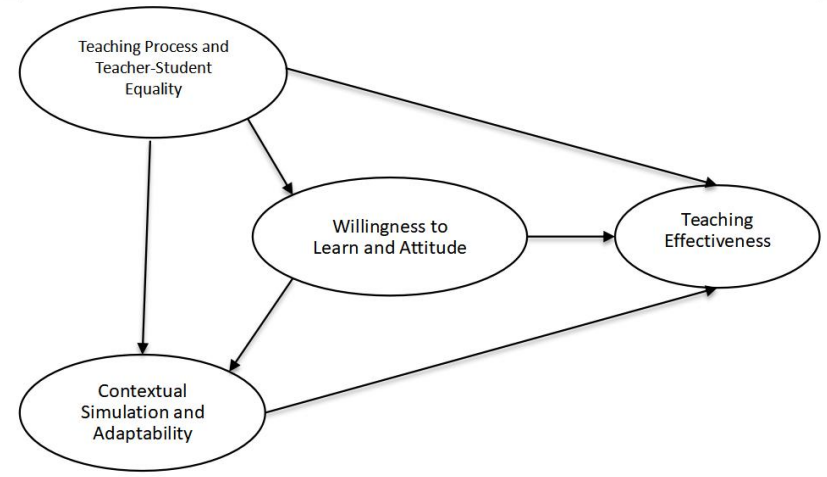


Figure 2. Theoretical Hypothetical Model of Case Teaching Effectiveness Under the OBE Philosophy

The measurement of latent variables in this model requires a series of observed or measurable variables. The design of these observed variables, excluding teaching outcomes, is based on the research findings of Shen et al.[6,8,9]. The observed variables for teaching outcomes, in turn, draw from the research conclusions in Fu's work[1], and especially Bi's Research on Process-Based Evaluation of OBE Case Teaching[3], which emphasizes the OBE philosophy. In addition, the design of the survey questions was informed by a review of online case analysis surveys and integrated with my own teaching practices. The final questionnaire, which uses a 5-point Likert scale, measures 26 exploratory variables that reflect the influencing factors in case teaching mechanisms. These variables are listed in Table 1.

Table 1. Factors Influencing Case Teaching Mechanisms

Latent Variables	Observed Variables (Influencing Factors)	Variable Code
Willingness to Learn and Attitude toward Learning	1. It doesn't matter to me whether the course is taught traditionally or with case teaching.	a1
	2. I prefer the teaching mode where the teacher speaks and I listen.	a2
	3. I dislike speaking in front of the class or expressing differing opinions in case teaching.	a3
	4. I am reluctant to share my thoughts and opinions about a case with others.	a4
	5. I prefer "free-riding" in case analysis classes.	a5
	6. The course assessment method in case teaching affects my learning.	a6
	7. My attitude towards case learning is positively correlated with the teacher's strictness.	a7
Teaching Process and	1. Before case discussions, I don't know how to obtain the necessary supplementary reading materials.	a8
	2. The way the teacher asks questions in case teaching causes me stress.	a9

Latent Variables	Observed Variables (Influencing Factors)	Variable Code
Teacher-Student Equality	3. Case discussions often “lose momentum” or become unproductive.	a10
	4. The teacher’s control over time and process in case discussions is not well-managed.	a11
	5. The teacher is unable to effectively guide us through difficulties during case discussions.	a12
	6. I prefer more open-ended discussions during case analysis.	a13
	7. I find that open discussions during case analysis often stray off-topic.	a14
	8. During case discussions, neither the teacher nor students often record points and conclusions using text or diagrams.	a15
	9. The teacher rarely gives feedback on our contributions, nor summarizes the discussion afterwards.	a16
Contextual Simulation and Adaptability	1. I think it’s important for cases to be objectively realistic.	a17
	2. I prefer typical cases or simple cases closely tied to the learning objectives.	a18
	3. Although complex cases are more challenging, they help me develop my professional skills.	a19
	4. What do you think is the ideal balance between small cases that match theoretical knowledge and comprehensive cases? (Scale from low to high, 5 levels)	a20
	5. What is the ideal ratio between domestic and international cases for learning? (Scale from low to high, 5 levels)	a21
Effectiveness of Case Teaching	1. It improves learning efficiency and deepens my understanding of professional knowledge.	a33
	2. It helps me learn methods and techniques for management courses.	a23
	3. It is beneficial for my future career development.	a24
	4. It helps cultivate my ability to analyze and solve problems, as well as my creative abilities.	a25
	5. It allows me to gain practical experience and industry insights.	a26

3. Questionnaire Survey and Reliability & Validity Testing

The questionnaire was distributed primarily through the Wenjuanxing platform, with the target participants being students from over 10 applied undergraduate institutions in Guangdong Province (accounting for over 98% of the respondents). The survey included students from various academic years, ranging from freshmen to seniors (Grade 1 to Grade 4). A total of 1,616 valid responses were collected. The survey also gathered demographic information such as students’ majors (e.g., Business Administration, Financial Management, Human Resource Management), practical experience, and whether their families owned businesses. The model proposed in this study does not consider the influence of student characteristics on other latent variables (i.e., the "student characteristics" latent variable was not included in the model, which contrasts with the views of Guo and Cao[5]. Initial data analysis revealed that variables related to student characteristics, such as grade level, major, and practical experience, did not show significant unique effects. The influence of "student characteristics" on other variables was minimal (process and data omitted for brevity). Therefore, these indicators do not significantly affect the effectiveness of case teaching under the OBE philosophy.

To evaluate the reliability of the survey data, the Cronbach’s α coefficient was calculated using SPSS 27. The Cronbach’s α coefficient is generally considered acceptable if it is greater than or equal to 0.7, indicating good reliability. As shown in Table 2, all Cronbach’s α coefficients meet the required threshold, confirming the reliability of the survey data.

Table 2. Reliability Test of Survey Data

Latent Variables	Number of Measurement Items	Cronbach’s α
Teaching Process and Teacher-Student Equality	9	0.861
Contextual Simulation and Adaptability	5	0.841

Willingness to Learn and Attitude	7	0.789
Effectiveness of Case Teaching	5	0.930
Overall Scale	26	0.922

Validity testing generally includes content validity and construct validity. Content validity refers to whether the questionnaire accurately reflects the topic being investigated. The design of this questionnaire draws on the research conclusions of numerous experts and scholars, as well as the author's years of teaching experience. Content validity is therefore assumed to meet the necessary standards. Construct validity is typically assessed using factor analysis, which first requires conducting the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. For the 26 exploratory observed variables mentioned earlier, the KMO and Bartlett's tests passed, but for variable a13 (factor loading coefficient), the absolute value of the communality was less than 0.4, suggesting that this observed variable should be removed from further analysis. After removing a13, factor analysis was performed on the remaining observed variables. The KMO and Bartlett's tests for the remaining variables yielded a KMO value of 0.946 (which is greater than 0.6), and the significance level (p-value) was less than 0.05. The factor communalities for the remaining variables were all greater than 0.4, indicating that the variables were meaningful and that the questionnaire retained construct validity. The relevant data are shown in Table 3 and Table 4 below.

Table 3. KMO and Bartlett's Test of Sphericity

KMO Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
	Approximate Chi-Square	Degrees of Freedom	Significance
0.946	22158.668	300	0.000

Table 4. Factor Communalities

S/N	Observed Variables	Initial	Extraction	S/N	Observed Variables	Initial	Extraction
1	a1	1	0.626	14	a15	1	0.646
2	a2	1	0.579	15	a16	1	0.699
3	a3	1	0.541	16	a17	1	0.577
4	a4	1	0.456	17	a18	1	0.608
5	a5	1	0.541	18	a19	1	0.638
6	a6	1	0.533	19	a20	1	0.536
7	a7	1	0.459	20	a21	1	0.567
8	a8	1	0.487	21	a22	1	0.706
9	a9	1	0.565	22	a23	1	0.728
10	a10	1	0.568	23	a24	1	0.728
11	a11	1	0.658	24	a25	1	0.755
12	a12	1	0.653	25	a26	1	0.701
13	a14	1	0.455				

4. Calculation of Model Impact Coefficients, Fit Testing, and Model Optimization

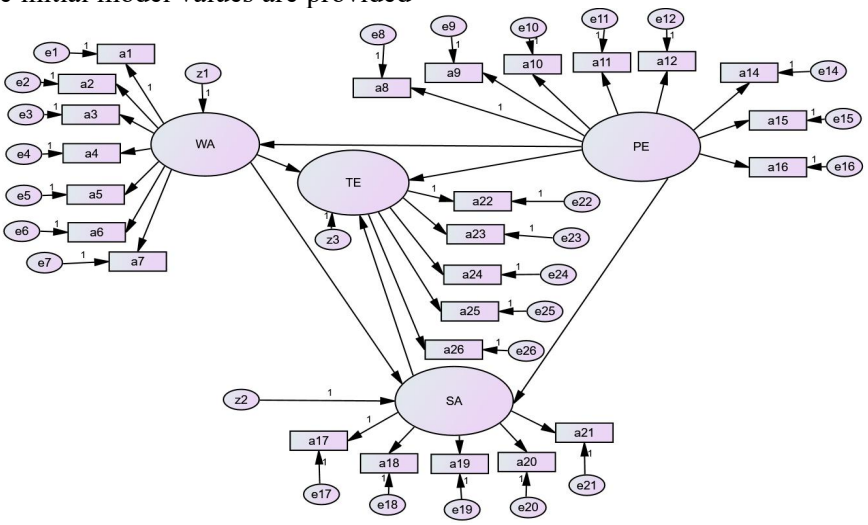
4.1 Initial Model Calculation and Testing Analysis

Based on the 25 retained observed variables, a structural equation model (SEM) was constructed using IBM-SPSS-AMOS 22 software. The initial structural equation model is shown in Figure 3.

The valid data from 1,616 questionnaires were imported into AMOS for analysis. The resulting coefficients from the model computation are displayed in Figure 4.

The model also requires a fitness test, which generally involves a set of complex indices. Wu, in his work, cites various expert opinions and suggests selecting several relevant indices from three categories—absolute fit indices, incremental fit indices, and parsimonious fit indices—based on the theoretical framework and the hypothesized model. In this study, after carefully considering the model's architecture and logic, and referencing the general practices of experts like Wu[14], we used several indices to assess model fit: chi-square value, chi-square/degrees of freedom ratio, GFI, AGFI, RMSEA, NFI,

RFI, IFI, TLI, CFI, PGFI, PNFI, and Critical N (CN, as indicated in the HOELTER column of the AMOS output). The standards for these indices and the initial model values are provided in Table 5, while the model impact coefficients and error term statistics are shown in Table 6.



(WA: Willingness to Learn and Attitude; PE: Teaching Process and Teacher-Student Equality; TE: Teaching Effectiveness; SA: Contextual Simulation and Adaptability)

Figure 3. Initial AMOS Structural Equation Model for Case Teaching Effectiveness under the OBE Philosophy

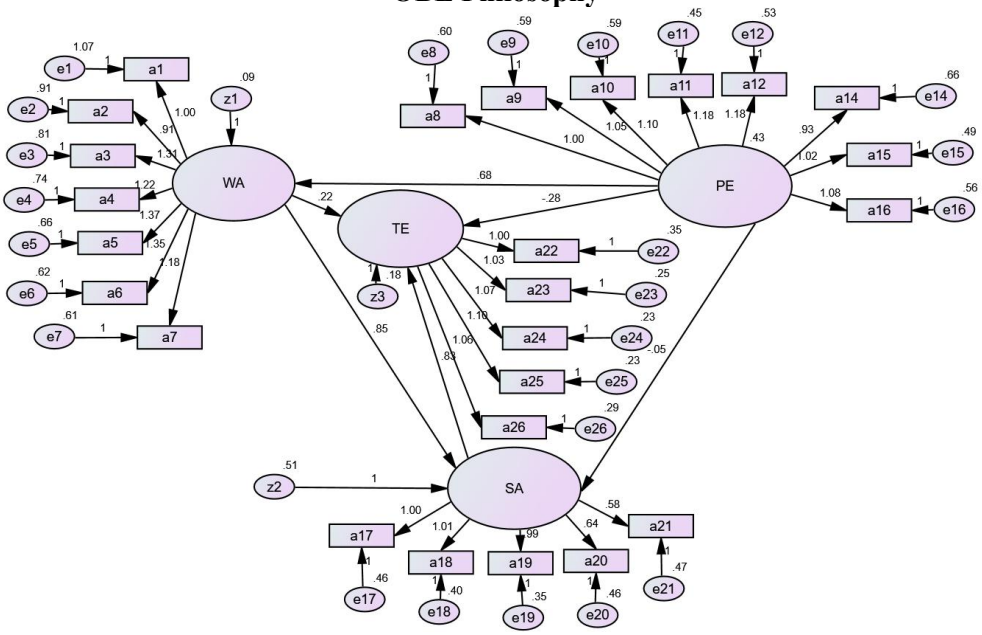


Figure 4. Initial Model Paths and Coefficients for Case Teaching Effectiveness under the OBE Philosophy

Table 5. Fit Indices and Initial Model Values

S/N	Indices	Standard	Model Value	S/N	Indices	Standard	Model Value
1	Chi-Square Value	Small, P > 0.05	0.000	8	IFI	>0.9	0.905
2	Chi-Square/df Ratio	1<NC<3	8.566	9	TLI	>0.9	0.894
3	GFI	>0.90	0.882	10	CFI	>0.9	0.905
4	AGFI	>0.90	0.857	11	PGFI	>0.5	0.730
5	RMSEA	<0.08	0.068	12	PNFI	>0.5	0.802
6	NFI	>0.9	0.894	13	CN	>200	217
7	RFI	>0.9	0.882				

Table 6. Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
Willingness to Learn & Attitude	<---	Teaching Process & Teacher-Student Equality	0.681	0.044	15.633	***
Contextual Simulation & Adaptability	<---	Willingness to Learn & Attitude	0.849	0.112	7.612	***
Contextual Simulation & Adaptability	<---	Teaching Process & Teacher-Student Equality	-0.05	0.081	-0.613	0.54
Teaching Effectiveness	<---	Willingness to Learn & Attitude	0.224	0.075	2.992	0.003
Teaching Effectiveness	<---	Contextual Simulation & Adaptability	0.833	0.031	26.47	***
Teaching Effectiveness	<---	Teaching Process & Teacher-Student Equality	-0.283	0.056	-5.101	***
a5	<---	Willingness to Learn & Attitude	1.371	0.083	16.591	***
a1	<---	Willingness to Learn & Attitude	1			
a18	<---	Contextual Simulation & Adaptability	1.013	0.03	33.518	***
a2	<---	Willingness to Learn & Attitude	0.905	0.067	13.477	***
a3	<---	Willingness to Learn & Attitude	1.308	0.082	15.934	***
a19	<---	Contextual Simulation & Adaptability	0.985	0.029	34.048	***
a20	<---	Contextual Simulation & Adaptability	0.642	0.026	24.9	***
a17	<---	Contextual Simulation & Adaptability	1			
a26	<---	Teaching Effectiveness	1.059	0.026	40.12	***
a25	<---	Teaching Effectiveness	1.101	0.026	42.453	***
a24	<---	Teaching Effectiveness	1.068	0.025	41.978	***
a23	<---	Teaching Effectiveness	1.029	0.025	40.776	***
a22	<---	Teaching Effectiveness	1			
a4	<---	Willingness to Learn & Attitude	1.221	0.077	15.825	***
a6	<---	Willingness to Learn & Attitude	1.349	0.081	16.672	***
a8	<---	Teaching Process & Teacher-Student Equality	1			
a9	<---	Teaching Process & Teacher-Student Equality	1.052	0.045	23.178	***
a10	<---	Teaching Process & Teacher-Student Equality	1.097	0.046	23.625	***
a11	<---	Teaching Process & Teacher-Student Equality	1.175	0.046	25.565	***
a12	<---	Teaching Process & Teacher-Student Equality	1.179	0.047	24.848	***
a14	<---	Teaching Process & Teacher-Student Equality	0.928	0.044	21.164	***
a15	<---	Teaching Process & Teacher-Student Equality	1.023	0.043	23.925	***
a16	<---	Teaching Process & Teacher-Student Equality	1.085	0.046	23.775	***
a21	<---	Contextual Simulation & Adaptability	0.583	0.025	23.131	***
a7	<---	Willingness to Learn & Attitude	1.178	0.073	16.114	***

As indicated in Table 5, some indices did not meet the ideal standards, and the error terms for several variables in Table 6 are positive but did not reach the significance level of 0.05. These results suggest that the initial model does not fit well or may not be entirely reasonable, and therefore, it requires modification.

4.2 Model Adjustment and Modification

The model adjustments were primarily made through two approaches: First, we eliminated the non-significant paths between latent variables and removed some observed variables that had a minimal effect on the latent variables (i.e., those with direct influence below 50%). Second, we utilized the modification indices (M.I.) provided by AMOS software to refine the relationships between variables. The latter approach involved adding certain impact paths to reduce the chi-square/df ratio. Based on the M.I. from AMOS, we added covariance

paths between the following variable pairs: e11 and e12, e15 and e16, and e20 and e21. Although these pairs of variables cover different content, their phrasing and tone in the survey were quite similar, with consecutive item numbers. Respondents, when answering the questions, could have subjectively linked their conclusions, which justifies the inclusion of these covariance paths. The modified model, along with the calculated path coefficients, is shown in Figure 5, and the model fit indices after the adjustment are presented in Table 7.

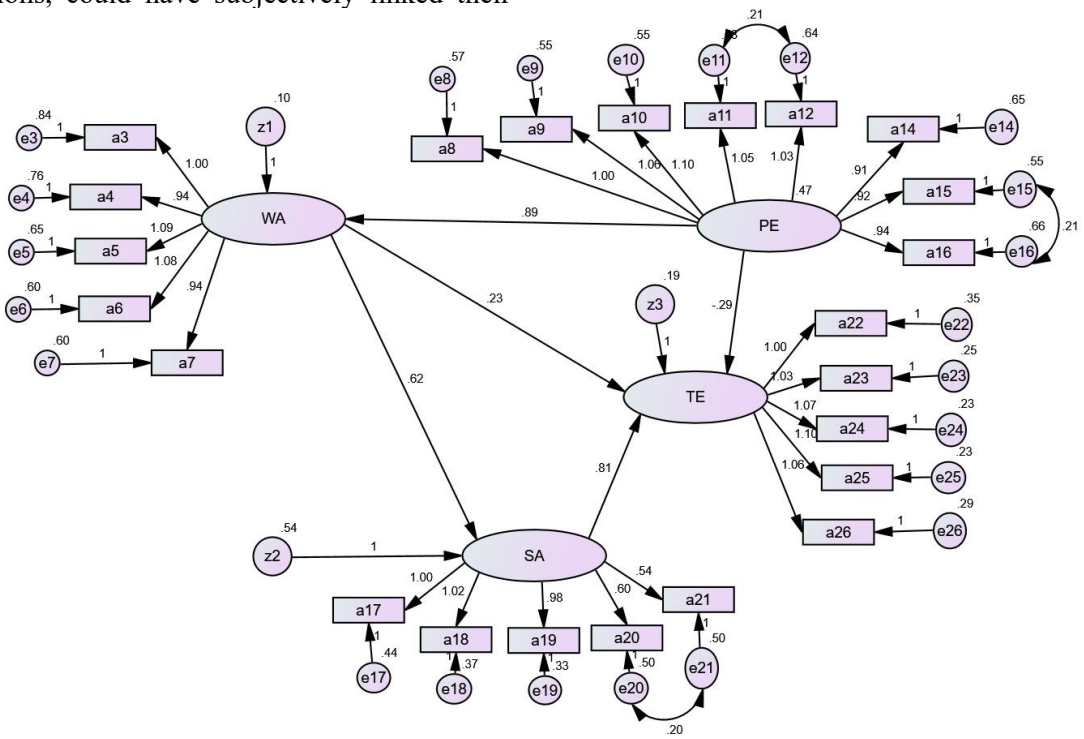


Figure 5. Modified Model and Correlation Coefficient

Table 7. Model Fit Indices After Modification

S/N	Indices	Standard	Model Value	S/N	Indices	Standard	Model Value
1	Chi-Square Value	Small, P > 0.05	0.000	8	IFI	>0.9	0.944
2	Chi-Square/df Ratio	1<NC<3	6.179	9	TLI	>0.9	0.936
3	GFI	1<NC<3	0.928	10	CFI	>0.9	0.944
4	AGFI	>0.90	0.910	11	PGFI	>0.5	0.746
5	RMSEA	>0.90	0.057	12	PNFI	>0.5	0.820
6	NFI	<0.08	0.934	13	CN	>200	304
7	RFI	>0.9	0.925				

Regarding the acceptability of the model, Wu[14], in his book Structural Equation Modeling—AMOS Operations and Applications (2nd Edition), pointed out that as the sample size increases, both the chi-square value and the chi-square/df ratio tend to become larger. Therefore, the overall model fit should not be assessed solely based on the chi-square value and chi-square/df ratio. Instead, other fit indices, which are less sensitive to fluctuations caused by sample size (such as those listed in Tables 5 and 7, excluding chi-square and chi-square/df ratio), should also be considered. Wu[14] provided examples of models with large sample sizes (e.g., exceeding 1000) where the chi-square value and chi-square/df ratio did not meet the fit standard, but other indices did, indicating that the model fit could still be deemed acceptable[14]. In this study, although the chi-square value for the revised model is relatively large (with a significance probability of 0.000, which is less than 0.05), and the chi-square/df ratio equals 6.179 (which exceeds the acceptable threshold of 3.000), these two indices do not meet the fit standard. However, other key fit indices indicate a good model fit: RMSEA = 0.057 (< 0.080), AGFI = 0.910 (> 0.900), GFI = 0.928 (> 0.900), TLI = 0.936 (> 0.900), CFI = 0.944 (> 0.900), NFI = 0.934 (> 0.900),

RFI = 0.925 (> 0.900), PGFI = 0.746 (> 0.5), PNFI = 0.820 (> 0.5), and CN = 304 (> 200). All of these indices meet the acceptable standards. Furthermore, the regression coefficients are significant, with p-values all less than 0.05 (the largest p-value in Table 8 is 0.005, which is one-tenth of 0.05). These results suggest that the hypothesized model can be accepted, and the causal relationships within the model are valid.

Table 8. Regression Weights of the Modified Model: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
Willingness to Learn & Attitude	<---	Teaching Process & Teacher-Student Equality	0.887	0.044	19.934	***
Contextual Simulation & Adaptability	<---	Willingness to Learn & Attitude	0.615	0.041	15.069	***
Teaching Effectiveness	<---	Willingness to Learn & Attitude	0.228	0.081	2.831	0.005
Teaching Effectiveness	<---	Contextual Simulation & Adaptability	0.806	0.03	26.557	***
Teaching Effectiveness	<---	Teaching Process & Teacher-Student Equality	-0.287	0.076	-3.778	***
a5	<---	Willingness to Learn & Attitude	1.094	0.052	21.159	***
a18	<---	Contextual Simulation & Adaptability	1.016	0.029	34.616	***
a3	<---	Willingness to Learn & Attitude	1			
a19	<---	Contextual Simulation & Adaptability	0.981	0.028	34.876	***
a20	<---	Contextual Simulation & Adaptability	0.598	0.025	23.472	***
a17	<---	Contextual Simulation & Adaptability	1			
a26	<---	Teaching Effectiveness	1.061	0.026	40.037	***
a25	<---	Teaching Effectiveness	1.103	0.026	42.332	***
a24	<---	Teaching Effectiveness	1.07	0.026	41.878	***
a23	<---	Teaching Effectiveness	1.03	0.025	40.623	***
a22	<---	Teaching Effectiveness	1			
a4	<---	Willingness to Learn & Attitude	0.944	0.049	19.221	***
a6	<---	Willingness to Learn & Attitude	1.076	0.05	21.316	***
a8	<---	Teaching Process & Teacher-Student Equality	1			
a9	<---	Teaching Process & Teacher-Student Equality	1.064	0.043	24.624	***
a10	<---	Teaching Process & Teacher-Student Equality	1.105	0.044	25.019	***
a11	<---	Teaching Process & Teacher-Student Equality	1.054	0.043	24.599	***
a12	<---	Teaching Process & Teacher-Student Equality	1.033	0.044	23.344	***
a14	<---	Teaching Process & Teacher-Student Equality	0.914	0.042	21.895	***
a15	<---	Teaching Process & Teacher-Student Equality	0.917	0.04	22.89	***
a16	<---	Teaching Process & Teacher-Student Equality	0.945	0.043	22.138	***
a21	<---	Contextual Simulation & Adaptability	0.536	0.025	21.471	***
a7	<---	Willingness to Learn & Attitude	0.935	0.046	20.152	***

5. Conclusions, Recommendations, and Outlook

To facilitate analysis and comparison, the impact coefficients between variables were standardized. The standardized regression coefficients are shown in Table 9 below.

Table 9. Standardized Regression Weights: (Group number 1 – Default model)

			Estimate
Willingness to Learn & Attitude	←-	Teaching Process & Teacher-Student Equality	0.884
Contextual Simulation & Adaptability	←-	Willingness to Learn & Attitude	0.497
Teaching Effectiveness	←-	Willingness to Learn & Attitude	0.193
Teaching Effectiveness	←-	Contextual Simulation & Adaptability	0.844
Teaching Effectiveness	←-	Teaching Process & Teacher-Student Equality	-0.242

			Estimate
a5	←-	Contextual Simulation & Adaptability	0.681
a18	←-	Contextual Simulation & Adaptability	0.815
a3	←-	Willingness to Learn & Attitude	0.598
a19	←-	Contextual Simulation & Adaptability	0.821
a20	←-	Contextual Simulation & Adaptability	0.584
a17	←-	Contextual Simulation & Adaptability	0.786
a26	←-	Teaching Effectiveness	0.848
a25	←-	Teaching Effectiveness	0.881
a24	←-	Teaching Effectiveness	0.875
a23	←-	Teaching Effectiveness	0.857
a22	←-	Teaching Effectiveness	0.807
a4	←-	Willingness to Learn & Attitude	0.596
a6	←-	Willingness to Learn & Attitude	0.689
a8	←-	Teaching Process & Teacher-Student Equality	0.67
a9	←-	Teaching Process & Teacher-Student Equality	0.701
a10	←-	Teaching Process & Teacher-Student Equality	0.714
a11	←-	Teaching Process & Teacher-Student Equality	0.702
a12	←-	Teaching Process & Teacher-Student Equality	0.662
a14	←-	Teaching Process & Teacher-Student Equality	0.613
a15	←-	Teaching Process & Teacher-Student Equality	0.646
a16	←-	Teaching Process & Teacher-Student Equality	0.623
a21	←-	Contextual Simulation & Adaptability	0.539
a7	←-	Willingness to Learn & Attitude	0.636

5.1 Conclusion on the Mechanism of Case Teaching under the OBE Philosophy

The mechanism of influence is primarily reflected in the relationships between the latent variables. The conclusions drawn in this study differ from the viewpoints of other scholars.

Based on the standardized coefficients, it is evident that the key factor directly influencing the effectiveness of case teaching under the OBE philosophy is the simulation and contextual adaptability of the teaching cases. This factor specifically manifests in how teachers select and organize case teaching content.

Surprisingly, the influence of students' willingness and attitude toward learning on teaching effectiveness is the lowest among the latent variables, which contradicts intuitive expectations. This may suggest that, within the current educational system, regardless of the teaching philosophy followed, the students' enthusiasm for case learning—whether high or low—has a relatively insignificant effect on learning effectiveness.

The organization of the teaching process and the equality between teachers and students are mainly reflected in the teacher's ability to organize, guide, and control the case teaching process, as well as in the students' position during the teaching (whether the focus is on the student or the teacher). However, their influence on learning effectiveness is not significant. In this model, the coefficient for this relationship is negative, primarily due to the way the questionnaire was designed. The questions were framed from a negative perspective, meaning that higher scores on a 5-point Likert scale indicated poorer performance. This variable has a positive impact on students' willingness and attitude toward learning because the questions related to their learning attitudes were also slightly negatively framed. While the organization of the teaching process and the equality between teachers and students significantly influence students' enthusiasm and attitude toward case learning, the limited impact of students' willingness to learn and attitude on learning effectiveness results in an overall modest influence.

5.2 Conclusion on the Factors Influencing Case Teaching under the OBE Philosophy

The factors influencing case teaching under the OBE philosophy were further analyzed by examining the observed variables based on the latent variables.

From the perspective of evaluating teaching

effectiveness, the evaluation dimensions (such as deepening understanding of professional knowledge, mastering management methods and skills, benefiting career development, aiding practical ability cultivation, and gaining practical and industry experience) are designed according to the OBE philosophy. The standardized path coefficients for these dimensions are all above 0.8, indicating that the OBE philosophy indeed aligns with the psychological learning needs of current students. Furthermore, it demonstrates that case teaching under the OBE framework enables students to experience better learning effectiveness. In other words, these factors serve as excellent indicators for evaluating the effectiveness of case teaching.

The contextual simulation and adaptability of the cases have a significant impact on teaching effectiveness. Among the observed indicators of this latent variable, the standardized path coefficients for the objectivity, typicality, and comprehensive openness of the cases are all above 0.8, emphasizing that these are crucial factors to consider when organizing the teaching content. However, the impact of different types of cases (whether comprehensive or non-comprehensive, Chinese or international) on the contextual simulation and adaptability of the cases is relatively moderate.

The impact of students' learning attitudes and willingness on learning effectiveness is relatively small. Willingness to learn and attitude are more closely related to assessment requirements and the degree of strictness of the teacher. This suggests that students may not exhibit high enthusiasm for case learning, and that case teaching is still predominantly a push-based learning approach, rather than fostering active, self-directed learning.

The organization of the teaching process and the equality between teachers and students have a more pronounced effect on students' willingness to learn and attitudes, but their direct and indirect impacts on learning effectiveness are minimal. Factors such as teachers assigning task materials in advance, effectively guiding and controlling the student discussion process, and providing feedback through visual aids or reminders, can all significantly influence the organization of the case teaching process and the equality between teachers and students.

5.3 Recommendations

For applied universities, in the context of case teaching under the OBE philosophy, the role of the teacher remains dominant, particularly in the selection and arrangement of course content. The chosen cases must be highly aligned with the course material to effectively deepen students' understanding of knowledge and enhance their practical abilities. Teachers must carefully select case content and thoughtfully organize it to ensure maximum educational benefit. Although students' willingness to learn and attitude, as well as the organization of the case teaching process and teacher-student equality, have minimal direct impact on learning effectiveness, they still exert some influence and should not be overlooked. Attention to these factors is advisable. Additionally, in institutions that emphasize process evaluation and student assessments, students' willingness and attitude toward case learning are significantly affected by the organization of the teaching process and the equality between teachers and students. Therefore, to achieve favorable student evaluations, it is essential to focus on guiding, controlling, and providing feedback throughout the case learning process.

5.4 Applicability of the Conclusions and Outlook

The research sample for this study primarily consisted of management students from applied undergraduate institutions in Guangdong Province. Therefore, the applicability of the conclusions may not be as strong for research-oriented universities, institutions in the fields of science, engineering, and medicine, or other humanities colleges. Specifically, the finding regarding the lack of proactive student engagement in the case teaching process should not be generalized, as this issue may be related to the type of institution and the characteristics of the student body.

Although the model and questionnaire design used in this study were based on the conclusions of numerous scholars and experts, there is still room for improvement: firstly, the latent and observed variables in the model should be further optimized based on a broader and more in-depth survey. Expert opinion methods could be employed to enhance the scientific validity and logical coherence of the model. Secondly, the

internal logic of the questionnaire items should be adjusted and optimized, such as avoiding negatively framed questions and minimizing issues of collinearity. Thirdly, the scope of the survey should be expanded to include a wider range of institutions, regions, and academic disciplines, to allow for more generalizable conclusions.

The OBE philosophy is a scientifically grounded and currently popular teaching concept. Case teaching, as an effective method of implementing this concept, should continue to be studied with a focus on the pathways, methods, mechanisms, and factors that influence its effectiveness. Such research can contribute to the cultivation of high-quality, job-ready applied talents for the country.

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