

Research on the Development and Application of Simulation-Based Experimental Teaching Cases for Course-Based Ideological and Political Education: Taking Quantitative Analysis Techniques in Public Administration as an Example

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Abstract

Course-based ideological and political education (CBIPE) serves as a vital pathway for fulfilling the fundamental mission of fostering virtue through education. Simulation-based experimental teaching, as an effective means to enhance graduate students' research capabilities and comprehensive literacy, holds significant value for educational reform when integrated with CBIPE. Taking the course Quantitative Analysis Techniques in Public Administration as a case study, this paper addresses current challenges in graduate CBIPE—such as superficial integration of ideological elements, lagging case-based teaching, and monotonous teaching models. It proposes a four-dimensional integrated approach for constructing and applying simulation experiment teaching cases: “Why Build - How to Build - How to Use - How to Evaluate.” Through systematic design encompassing a “nine-dimensional integrated” teaching model—comprising three-dimensional guided learning (pre-class resource, context, and task scaffolding), three-dimensional interaction (teacher-student, peer-to-peer, and spatiotemporal engagement), and three-dimensional feedback (exercise, Q&A, and problem-extension)—a simulation experiment case repository integrating CBIPE was developed and validated for effectiveness in teaching practice. Results demonstrate that this model significantly enhances students' quantitative analysis skills, research literacy, and value recognition (specifically, a deeper understanding of the social context of research, adherence to scientific integrity, and a sense of civic responsibility, as

observed through classroom discussions and reflected in post-course reflections).

Keywords

Course-Based Ideological and Political Education, Simulation-Based Experimental Teaching, Case Development, Quantitative Analysis Techniques in Public Administration, Teaching Reform

1. Introduction

Within the new era higher education system, the fundamental questions of “what kind of people to cultivate, how to cultivate them, and for whom to cultivate them” are pivotal to the future of the nation and its people. At the National Conference on Ideological and Political Work in Higher Education Institutions, General Secretary Xi Jinping emphasized the need to “make good use of classroom teaching as the primary channel” and to promote “all types of courses to move in the same direction as ideological and political theory courses, forming synergistic effects” (Lin, 2018). To implement this directive, the Ministry of Education issued the “Guidelines for Ideological and Political Education in Higher Education Courses,” explicitly requiring the full integration of ideological and political education into classroom teaching and the entire talent cultivation process (Guo, 2022). Against this backdrop, Course-based Ideological and Political Education (CBIPE) has become a core measure for universities in China to fulfill the fundamental task of fostering virtue and cultivating talent (Zhao & Yu, 2025). For an international readership, this concept refers to the deliberate and organic integration of value guidance—emphasizing social responsibility, national conditions awareness, scientific spirit, and professional ethics—into the subject matter and pedagogical processes of all academic courses, moving beyond dedicated political theory classes. The goal is to achieve synergistic effects between knowledge transfer and value shaping. Simultaneously, with the deep integration of information technology and educational models, simulation-based experimental teaching methods have demonstrated significant advantages in enhancing students’ practical abilities, innovative thinking, and comprehensive literacy through their features of scenario construction, visual presentation, and high interactivity (Davies et al., 2013). Exploring the organic integration of ideological and political education with simulation-based experimental teaching is not only an imperative response to national education policies but also an intrinsic need for innovating teaching models and improving talent cultivation quality (Ji et al., 2025).

However, at the graduate level, particularly in methodological courses, deepening the practice of ideological and political education in the curriculum remains a formidable challenge (Hu, 2023). Take Quantitative Analysis Techniques in Public Administration, a core methodological course for academic public administra-

tion graduate students, as an example. Its objective is to cultivate students' ability to apply scientific methods to investigate public administration phenomena (Al Mamun et al., 2022). The course's abstract theories and rigorous logic often trap students in a "knowing the what but not the why" dilemma (Hefetz & Sebő, 2024; Honig, 2019), hindering deep comprehension of the philosophical underpinnings and underlying assumptions of these methods (Islam & Khan, 2024). More alarmingly, quantitative analysis, as a tool of instrumental rationality, risks fostering blind reverence for technology when devoid of proper value guidance in teaching—detaching students from China's national conditions and institutional context (AL-Qadri & Al-Khresheh, 2025; Wang et al., 2022). Currently, ideological and political education in this course faces three prominent issues: First, ideological elements are "forced into" the curriculum, resulting in awkward integration with professional knowledge and creating a disconnect between theory and practice (Chen & Qi, 2024); Second, teaching cases are outdated, often relying on Western scenarios or obsolete data, lacking contemporary relevance and local context, and failing to stimulate students' interest in researching China's real-world issues (Lai, 2022); Third, the teaching model is unidirectional, dominated by teacher-centered lectures with students passively receiving information, making it difficult to achieve the deeper goals of knowledge internalization and value recognition (Shi et al., 2021).

Given these challenges, this study uses the Quantitative Analysis Techniques in Public Administration course at Jiangxi Normal University as a practical vehicle to systematically investigate the development and application of simulation-based teaching cases within the framework of CBIPE. As a context-specific form of values-oriented education in China, CBIPE aims to integrate civic responsibility, scientific integrity, and professional ethics into disciplinary teaching. This study aims to overcome the aforementioned challenges by constructing a four-dimensional teaching case development and application pathway—"Why Build - How to Build - How to Use - How to Evaluate"—and designing a "Nine-Dimensional Integration" teaching model encompassing "Three-Dimensional Guided Learning - Three-Dimensional Interaction - Three-Dimensional Feedback." This approach builds a simulation experiment case repository deeply integrated with ideological and political elements. This exploration not only promises to significantly enhance students' quantitative analysis skills, research literacy, and value recognition—achieving the organic integration of knowledge transmission, competency development, and value guidance—but also provides a replicable and scalable practical paradigm for ideological and political teaching reform in graduate methodology courses. It holds significant theoretical value and practical significance for advancing the high-quality development of graduate education.

2. Key Issues and Research Methods

To systematically construct a simulation-based experimental teaching system grounded in CBIPE, it is essential to first identify the core challenges to be ad-

dressed and the corresponding methodological pathways. This chapter will elaborate on two critical issues requiring focused resolution in curriculum development and systematically outline the corresponding research methodology framework.

2.1. Key Issues

1) The issue of integrating ideological and political elements into simulation experiment case development with targeted relevance. This involves exploring how to leverage the latest academic achievements to innovate the development and updating models for graduate case teaching. It also entails analyzing the forms and timing for integrating ideological and political elements into master's-level case teaching to highlight its contemporary relevance and targeted effectiveness.

2) The applicability of integrating ideological and political elements into graduate case teaching. How to leverage the advantages of simulated experiments in overcoming temporal and spatial constraints, researching methods to overcome obstacles in integrating ideological and political elements into case teaching, analyzing their formation mechanisms and solutions. During case teaching, how to guide students in clarifying their thinking, identifying problems, analyzing causes, and engaging in theoretical reflection, thereby conducting discernment-based thinking training to effectively enhance students' research capabilities and achieve value-oriented guidance.

2.2. Research Methods

This study employs literature review, survey research, action teaching methodology, and teaching experimentation. The first two methods collect and analyze subject materials to identify issues and develop case-building approaches. The latter two methods, based on case development, utilize teaching action tracking and teaching experiments to construct case-based teaching models and evaluation methods. This iterative process enhances teaching quality, proposes solutions, and achieves research objectives.

1) Literature Review Method. This method comprehensively utilizes various databases to examine literature, grasp the characteristics of CBIPE and case-based teaching, advance reform practices, and enhance talent cultivation quality.

2) Survey Research Method. Through platforms like the "National Joint Conference of Deans (Department Heads) of Land Resource Management in Higher Education Institutions" and the "China Land Science Forum," this method investigates the current state of case-based teaching for the course "Quantitative Analysis Techniques in Public Management" nationwide. It also surveys relevant courses implementing CBIPE to understand its fundamental status.

3) Action Education Method. Following the "practice-refine-re-practice-re-refine" philosophy, optimize the syllabus for Quantitative Analysis Techniques in Public Management. Develop and implement research plans, conduct open reflection and communication, and systematically analyze the entire process of CBIPE

through case teaching to summarize teaching models. On this foundation, drive the reform of teaching plans for the Master's program in Land Resources Management, leveraging this point to enhance the quality of graduate education across the board.

4) Teaching Experiment Method. A quasi-experimental design was implemented over two consecutive academic years (2022-2023 and 2023-2024). The experimental group (n = 45) experienced the proposed "Nine-Dimensional Integration" teaching model with the simulation-based case repository. The control group (n = 48), taught by the same instructor, received traditional lecture-based instruction covering identical core content but without the systematic simulation cases or the structured interactive phases. Specific instructional differences included the experimental group's engagement with pre-class guided learning tasks, in-class interactive case analyses, and post-class feedback loops, which were absent in the control group's curriculum. Quantitative metrics for comparison included final exam scores (assessing quantitative analysis skills), scores on a standardized research proposal rubric (assessing research literacy), and analysis of pre/post-course questionnaires measuring attitudes towards scientific integrity and social responsibility (assessing value orientation).

3. Holistic Design and Practical Validation of Solutions

Building upon the in-depth analysis of challenges presented earlier, this chapter systematically proposes solutions. Following the logical framework of "Why Build - How to Build - How to Use - How to Evaluate," it constructs a comprehensive simulated experimental teaching case system, providing an actionable implementation plan for the deep integration of CBIPE with professional teaching.

3.1. Overall Solution Design Framework

This research follows the research logic of "Why Build - How to Build - How to Use - How to Evaluate" (See **Figure 1** for details). Based on the characteristics of the Quantitative Analysis Techniques in Public Management course, it integrates the project leader's latest research findings, cutting-edge academic achievements, and classic literature to enrich case development materials. Through the construction and application of a simulation experiment teaching case repository, it explores the implementation pathways, teaching models, and evaluation standards for simulation experiment case-based teaching grounded in CBIPE within graduate teaching reform. This process aims to refine models, summarize experiences, and continuously enhance the quality of graduate talent cultivation.

3.2. Specific Pathways for Case Repository Development

1) Development Rationale ("Why Build"): Exploring synergistic effects between case-based teaching and graduate ideological and political education.

The guiding principles from the National Graduate Education Conference and the National and Provincial Higher Education Ideological and Political Work

Conferences provide policy direction for universities to fulfill the fundamental mission of “cultivating virtue and fostering talent” through classroom instruction. Guided by the Core Curriculum Guidelines for Academic Degree Graduate Students, the teaching syllabus is redesigned with full consideration of the characteristics of ideological and political education for master’s students and a comprehensive understanding of case-based teaching features. Conduct a theoretical analysis of the simulated experiment case teaching in “Quantitative Analysis Techniques in Public Administration” using learning theories such as behaviorism, information processing theory, and constructivism to solidify the theoretical foundation for case development. A learner-centered design approach was adopted to develop the simulation experiment case repository construction plan and application scheme (See **Figure 2** for details). This approach seeks to comprehensively identify obstacles to integrating ideological and political elements into the simulation experiment case teaching of Quantitative Analysis Techniques in Public Administration from three dimensions—course objectives, teaching requirements, and teaching effectiveness—while exploring synergistic effects.

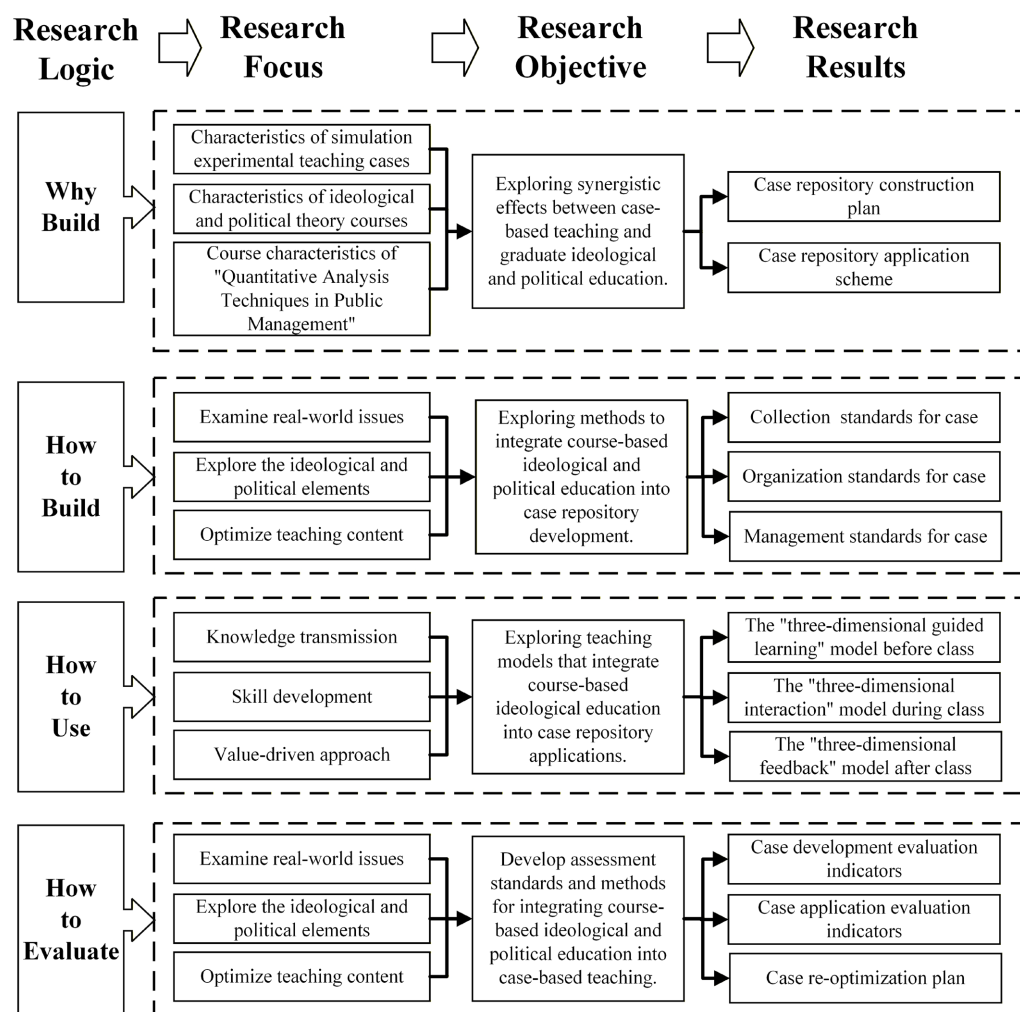


Figure 1. Research framework diagram.

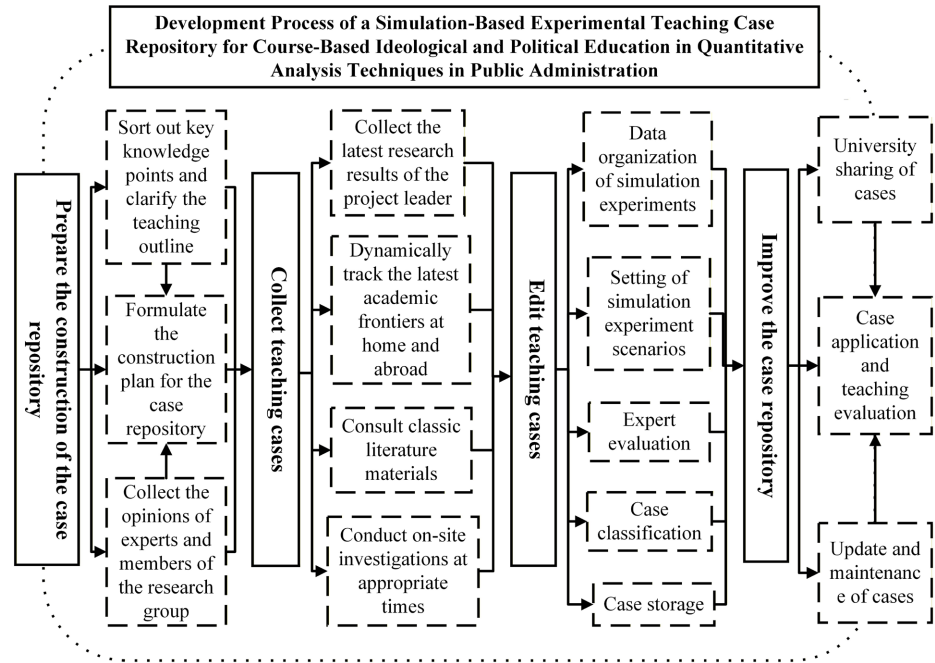


Figure 2. Case repository development process.

2) Implementation Path (“How to Build”): Exploring methods to integrate course-based ideological and political education(CBIPE) into case repository development.

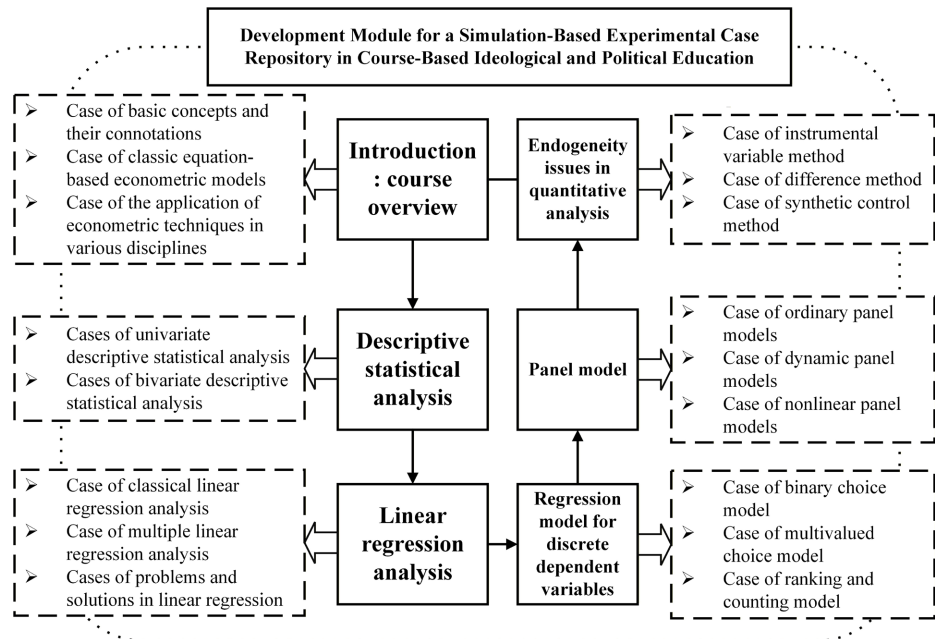


Figure 3. Case repository development modules.

Addressing issues in teaching “Quantitative Analysis Techniques in Public Administration”—such as overemphasizing theoretical frameworks over practical application, and prioritizing method introduction over competency development—

alongside challenges in case construction like limited diversity, weak data continuity, and lack of distinctiveness, the project integrates the principal investigator's latest research findings, cutting-edge academic achievements, and classic literature to enrich case materials. Ideological and political elements are embedded into key chapters, with case construction modules clearly defined (See **Figure 3** for details).

The project will fully incorporate the latest research findings in case-based teaching. By addressing key challenges in teaching chapters, it will strengthen ideological and political education reform, optimize instructional content design (See **Table 1** for details), and organize modules around background knowledge, simulated experimental data, simulated experimental scenarios, significance analysis, insightful reflections, teaching suggestions, and reference materials. This will enhance the guidance and effectiveness of case-based teaching. Furthermore, it will establish collection, organization, and management standards for simulated experiment teaching cases.

Table 1. Content design for ideological and political education in the “Quantitative Analysis Techniques in Public Administration” course.

Module	Case Repository Category	Knowledge Points Covered	Course-Based Ideological and Political Education Objectives	Data Sources for Simulation Experiments
Introduction: Course Overview	Cases Illustrating Fundamental Concepts and Implications	Fundamental knowledge of measurement technology, large sample theory (including: convergence in probability, law of large numbers, central limit theorem, properties of large sample estimation)	Understanding the relationship between subjective initiative, and objective laws; the dialectical relationship between contingency and necessity in Marxist philosophy	Did the number of babies named “Ava” cause the housing bubble?
	Case Study: Classical Equation Econometric Model	Construction and empirical process of econometric models	The dialectical relationship between form and content in Marxist philosophy	A New Exploration of School District Housing Premiums: An Empirical Analysis Based on Repeated Cross-Sectional Data from Beijing’s Six Urban Districts
	Case Studies of Econometric Techniques Applied Across Disciplines	The Concept of “From Sample to Population” in Econometric Techniques	The Relationship Between Part and Whole, Phenomenon and Essence in Marxist Philosophy	Land Certificates, Heterogeneity, and Farmland Circulation: An Empirical Analysis Based on the 2018 “Thousand People, Hundred Villages” Survey
Descriptive Statistical Analysis	Case Study of Univariate Descriptive Statistical Analysis	Frequency Analysis, Central Tendency Analysis, Dispersion Analysis, and Distribution of Univariate Data	Researching Chinese Issues, Understanding National Conditions, and Inspiring Patriotic Passion	High Fertilizer Use in China and Smallholder Fertilization Practices: Findings from National Rural Fixed Observation Points, 1995-2016
	Case Study of Bivariate Descriptive Statistical Analysis	Frequency analysis, central tendency analysis, and dispersion analysis of bivariate data	Conduct statistical analysis of data without distorting its characteristics, adhering to facts and fostering a meticulous work ethic and a serious, conscientious attitude	Land Formation and Utilization Characteristics of China’s Family-Run Planting Farms: Based on Monitoring Data from 31 Provinces (Autonomous Regions, Municipalities) Across China, 2014-2018

Continued

Linear regression analysis	Case Study of Classical Linear Regression Analysis	Fundamental principles, assumptions, data requirements, estimation procedures, and related tests for classical linear regression	The establishment of regression models should undergo economic theory testing and econometric verification, cultivating students' meticulous, rigorous, and truth-seeking scientific spirit	Mincer Equation Testing
	Case Study of Multiple Linear Regression Analysis	Fundamental principles, assumptions, data requirements, estimation procedures, and related tests for multiple linear regression	From Sensory Perception to Rational Understanding	Cobb-Douglas Production Function Testing
	Issues in Linear Regression and Case Studies on Their Handling	Heteroscedasticity, Autocorrelation, Model Specification, and Data Issues	Persevere, but avoid stubbornness	Returns to Scale in Electricity Supply
Regression Models for Discrete Dependent Variables	Case Study of a Binary Choice Model	Fundamentals of Binary Choice Models: Assumptions, Data Requirements, Estimation Processes, Problem Handling, and Testing	The Importance of Cognitive Choice, Embracing the Spirit of Seeking Truth from Facts	How Does Education Influence Chinese Families' Willingness to Have a Second Child? Evidence from CGSS (2013). Journal of Public Administration (Principal Investigator's Publication)
	Case Study of Multinomial Choice Models	Fundamental Principles, Assumptions, Data Requirements, Estimation Process, Problem Handling, and Testing of the Multivalued Choice Model	Recognizing the multifaceted and complex nature of phenomena, embracing a pragmatic research ethos	Do High Urban Housing Prices Suppress Labor Participation? Journal of Finance and Economics (Core Researcher Contribution)
	Case Study of Ranking and Counting Models	Fundamental principles, assumptions, data requirements, estimation procedures, problem handling, and testing for ordinal and count models	Understanding Racial Discrimination Among Western Populations Through Classic Literature	Introductory Econometrics: A Modern Approach, 2nd edition. South-Western, a division of Thomson Learning.
Panel Models	Case Study of Ordinary Panel Models	Fundamental principles of panel models, assumptions, data requirements, estimation procedures, problem handling and testing, problem resolution	Understanding the profound impact of the "Household Contract Responsibility System" on Chinese society and strengthening the sense of mission in scientific research	Rural reforms and agricultural growth in China
	Case Study of Dynamic Panel Models	Fundamental principles, assumptions, data requirements, estimation procedures, and issue handling for nonlinear panel models	Understanding the impact of green development and scientific methods	Spatio-Temporal Differentiation and Convergence of China's Green Innovation Capacity. Journal of Management Science (Principal Investigator's Achievement)
	Case Studies of Nonlinear Panel Models	Fundamental Principles, Assumptions, Data Requirements, Estimation Process, and Problem Handling of Nonlinear Panel Models	Data Simulation and Seeking Truth from Facts: From Rational Understanding to Practice	Microeconometrics using Stata, revised edition. College Station, Texas

Continued

	Cases of Instrumental Variables Methods	Fundamental Principles, Assumptions, Estimation Process, and the Science and Practice is the sole criterion Art of Instrument Selection for testing truth in Instrument Variables Methods		Income, Social Security, and Chinese Families' "Two-Child" Decisions: Evidence from Urban Residents' Fertility Intentions. The Singapore Economic Review (Lead Author)
Endogeneity Issues in Quantitative Analysis	Cases of the Difference-in-Differences Method	Basic Principles, Assumptions, Data Requirements, Estimation Process, and Problem Handling of the Difference-in-Differences Method	Absolute Truth and Relative Truth	Study on the Technological Innovation Induction Effects of Resident Tiered Electricity Pricing Policies. Management World (Lead Author)
	Causal Synthesis Method Case Study	Fundamental Principles, Assumptions, Data Requirements, Estimation Process, and Testing of Synthetic Control Method	Mutually Reinforcing Relationships, Riding the Wave; The Guiding Role of Knowledge in Practice	The Impact of Property Tax on Industrial Relocation: Empirical Evidence from Chongqing and Shanghai

3.3. Teaching Model and Evaluation System Design

1) Teaching Model ("How to Use"): Constructing a "Nine-Dimensional Integrated" Teaching Organization System.

Exploring teaching models that integrate course-based ideological education into case repository applications. Adopting a problem-oriented approach, this involves comprehensively analyzing case materials to establish a "Nine-Dimensional Integration" teaching organization model featuring pre-class "Three-Dimensional Guided Learning," in-class "Three-Dimensional Interaction," and post-class "Three-Dimensional Feedback." This guides students to actively think and explore within specific problem scenarios, cultivating their abilities to identify, analyze, and solve problems, thereby enhancing quantitative analysis and research skills.

First, the "three-dimensional guided learning" model before class. This includes: - Resource-dimension guidance: Research findings, raw data, and operational commands are pre-uploaded to a shared platform, enabling students to grasp the learning context at a glance and access materials instantly. Case materials and teaching presentations are uploaded to online platforms for offline study. - Background knowledge-dimension guidance: Students acquire contextual knowledge through assigned instructional videos and background materials. Learning Task Dimension: To ensure learning progress and achievement of teaching objectives, meticulously crafted weekly learning task sheets specify learning goals, content (teaching materials, online videos, chapter exercises), and timelines for each class session. By providing online learning resources and background materials catering to diverse needs, and assigning structured tasks, this "three-dimensional guided learning" approach fulfills students' resource requirements, clarifies learning objectives, enhances engagement, and elevates their research literacy and comprehensive competencies.

Second, the “three-dimensional interaction” model during class. This includes: - Teacher-Student Interaction: Innovating engagement methods through shared achievements. - Student-Student Interaction: Reforming peer collaboration via group discussions and class-wide sharing. - Spatio-Temporal Interaction: Leveraging project leaders’ latest academic findings and utilizing simulation experiments’ spatiotemporal features to integrate temporal and spatial resources. Through “teacher-student interaction, student-student interaction, and spatio-temporal interaction,” this “three-dimensional interaction” enhances students’ learning enthusiasm, cultivates their research capabilities and comprehensive qualities, and subtly achieves value guidance.

Third, the “three-dimensional feedback” model after class. This includes: - Experimental exercise feedback: Reassigning experimental exercises through rehypothetizing case teaching materials and reframing questions. - Q&A feedback: Leveraging the immediacy of online interaction to track student progress and address queries. - Problem-expansion feedback: Harnessing the openness of online interaction to pose extension questions, guiding students in critical thinking exercises. Through open-ended exercises, real-time Q&A, and advanced problem-expansion, this approach achieves a “three-dimensional integration” of knowledge, competency, and values. It enhances student engagement, refines assessment standards, and fosters comprehensive development of research capabilities and overall quality. Post-class feedback also strengthens student care, elevating value-driven guidance and professional instruction to higher levels.

2) Evaluation Mechanism (“How to Evaluate”): Establish a comprehensive teaching evaluation system.

Develop assessment standards and methods for integrating CBIPE into case-based teaching. Employ a combination of self-assessment and student periodic evaluations, flexibly utilizing data collection methods such as on-site interviews, online polls, and questionnaire surveys. Focusing on key issues like core teaching objectives, teaching reform performance, and analysis of factors hindering teaching effectiveness, establish learner-centered case development and application evaluation indicators across dimensions, including “learning objectives, learning conditions, learning guidance, student activities, learning outcomes, innovative features, and holistic evaluation.” Based on the assessment of teaching reform effectiveness, analyze the psychological formation mechanisms through which various obstructive factors impact teaching reform performance. Explore how to reduce the development levels of these obstructive factors, interrupt their psychological chain of occurrence, and construct case re-optimization plans.

3.4. Practical Application and Effect Validation

Using the “Binary Choice Model Case” from the chapter on regression models with discrete explanatory variables as an example, demonstrate the complete teaching implementation process:

- 1) Pre-class implementation: Instructors record online learning videos and em-

bed interactive questions to promote active learning; students study assigned papers based on task sheets and replicate academic research findings using shared data and commands.

2) In-class interaction phase: Instructors design empirical approach questions and challenging problems based on student learning data; students engage in classroom discussions, posing questions about their personal discoveries.

3) Post-class extension activities: Students repeat the empirical process and attempt new data analysis; instructors provide ongoing guidance for students conducting related empirical research.

This course employs a multi-dimensional assessment approach, collecting data through self-assessment, student progress evaluations, on-site interviews, online polls, and questionnaire surveys. Centered on core teaching objectives, comprehensive evaluations are conducted across multiple dimensions including “learning goals, learning conditions, instructional guidance, student activities, learning outcomes, innovative features, and holistic assessment.”

4. Teaching Reform Outcomes, Distinctive Features, and Outlook

4.1. Practical Outcomes

Through the systematic development and implementation of a simulated experimental teaching case system, this course has achieved significant outcomes in research achievements, resource development, and environmental support. Over the past three years, master’s students in Land Resource Management have applied quantitative analysis methods taught in this course to publish 31 Category B or higher papers in journals such as *Management Review* and *Asia Pacific Journal of Tourism Research*, including 14 Category A papers. Eighteen simulation-based teaching cases have been developed, including seven derived from the team’s latest research published in journals like the *Journal of Public Administration and Management Review*, and eleven based on classic literature and open data. The university and college have jointly established a comprehensive experimental teaching environment equipped with statistical software, databases, and college-level laboratories, while also creating online teaching spaces and resource-sharing platforms.

4.2. Key Features

1) Innovating Knowledge Transmission Systems Through Self-Developed Simulation Cases. Leveraging phased outcomes from the “Jiangxi Provincial Key Project for Degree and Graduate Education Reform,” this initiative aligns with innovative talent cultivation requirements. Centered on the teaching team’s latest research, it pioneers a case development and updating model for graduate education. It explores integrating ideological and political elements into master’s case teaching through form and timing selection, enhancing the contemporary relevance and targeted nature of master’s case instruction. This approach achieves case integra-

tion throughout the knowledge system, revolutionizing knowledge delivery.

2) Innovative Practice of the “Nine-Dimensional Integration” Teaching Organization Model. The teaching team reformed the “three-part teaching process” centered on the learning journey: Pre-class, “three-dimensional guided learning” is achieved by providing online resources, background materials, and assigning learning tasks; During class, “three-dimensional interaction” is achieved through “teacher-student interaction, student-student interaction, and spatiotemporal interaction”; post-class, “three-dimensional integration” of knowledge, qualities, and values is realized through open-ended experimental exercises, real-time Q&A, and advanced problem expansion. Centered on pre-class “three-dimensional guided learning,” in-class “three-dimensional interaction,” and post-class “three-dimensional feedback,” the “Nine-Dimensional Integration” teaching organization model was innovated.

3) Reform of Course-Based Ideological and Political Education (CBIPE) Model Using Simulation Experiments. This project leverages the spatio-temporal advantages of simulation experiments to overcome barriers in integrating ideological and political elements into case-based teaching. During case studies, students are guided to clarify their thinking, identify problems, analyze causes, and engage in theoretical reflection. This process cultivates discernment-based thinking, effectively enhances students’ research capabilities, and achieves value-oriented guidance.

4.3. Dissemination and Evaluation

The course development model has gained widespread recognition both within and outside the university, and has been extended to multiple disciplines including Business Administration, Management Science and Engineering, Applied Economics, and Urban and Rural Planning. Internal evaluations affirm that the course “provides a replicable model for foundational talent cultivation” and supports the university’s development of a first-level master’s program in Public Administration. External experts from institutions such as Central China Normal University, Nanchang University, and Jiangxi University of Finance and Economics have noted that the model “demonstrates how research can enrich teaching and holds significant value for broader application.”

Student evaluations consistently praise the course, highlighting: systematic and comprehensive content that enhances research capabilities; flexible teaching methods fostering active classroom interaction; diverse assessment approaches that promote self-directed learning; and solid learning outcomes demonstrating significant improvements in quantitative analysis skills and logical thinking. Teaching video recordings further demonstrate thorough class preparation and highly effective teacher-student interaction.

4.4. Shortcomings and Outlook

Current course development faces two major challenges: First, the limited class

hours conflict with the rapid advancement of modern quantitative analysis methods, making it difficult to comprehensively teach the latest research methods within the constrained timeframe. Second, the fast-food culture of the new media environment clashes with the need for dedicated study of classic literature, requiring enhanced student motivation for in-depth reading of foundational texts.

Future teaching reforms will deepen in four areas: establishing a dynamic case update mechanism to promptly integrate the latest research findings; exploring blended learning models to extend the classroom's temporal and spatial reach; strengthening interdisciplinary exchanges to broaden the application scope of these models; and conducting in-depth research into learning patterns in the new media era to innovate teaching methods and continuously refine the simulation-based experimental teaching system grounded in CBIPE.

5. Conclusion

This study systematically constructed a simulation-based experimental teaching case system grounded in CBIPE, using the course "Quantitative Analysis Techniques in Public Administration" as its vehicle. Through a comprehensive logical framework addressing "Why Build - How to Build - How to Use - How to Evaluate," it innovatively designed a "Nine-Dimensional Integration" teaching organization model, achieving effective integration of CBIPE with professional instruction.

Theoretically, this study explores pathways for integrating ideological and political education into graduate methodology courses, proposing a "three-dimensional guided learning - three-dimensional interaction - three-dimensional feedback" teaching model that provides a reference framework for similar course reforms. Practically, it established a simulation-based teaching case repository containing 19 cases, developed a series of teaching resources, and validated their effectiveness through pedagogical implementation.

Practice demonstrates that this teaching model significantly enhances students' quantitative analysis skills, research literacy, and value recognition, particularly concerning the importance of grounding quantitative analysis in real-world national conditions and upholding rigorous scientific standards, which was evidenced by the quality of student discussions and their reflective assignments. Over the past three years, master's students in Land Resource Management have published 31 Category B or higher academic papers using methods taught in the course, including 14 Category A or higher papers. The course development model has been replicated across multiple disciplines and has gained widespread recognition from experts both within and outside the university.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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