

## Innovative Pathways for “Dual-Case” Pedagogy in New Business Disciplines

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**Abstract:** This study offers a systematic review of the historical trajectory of case-based teaching—from its origins at Harvard University to its diffusion and adaptation in China across management, law, and medicine. The synthesis highlights enduring constraints—insufficient instructor preparation, uneven student engagement, variable case quality, and procedural inconsistency—that continue to limit learning outcomes and scalability. In response, we foreground the emerging “Dual-Case” pedagogy. Although the current evidence base is still limited, we identify substantial potential for application, particularly under the impetus of the “classroom revolution” in vocational education and ongoing teaching-reform initiatives. Anchored in higher-vocational programs within the new business disciplines, we propose a student-centered, outcomes-oriented implementation framework operationalized across five dimensions: (1) aligning course objectives with competency standards; (2) reconstructing content by pairing industry-authentic and value-oriented cases; (3) building a resource bank that integrates modular case libraries with teacher–enterprise co-creation; (4) innovating teaching models that blend guided inquiry, simulation, and collaborative problem-solving; and (5) advancing a paradigm shift that embeds curriculum-based holistic student development while deepening industry–education collaboration. By enhancing situational vividness, standardizing instructional procedures, and diversifying assessment (process–product, formative–summative), the Dual-Case approach provides a replicable pathway for reform in education for the new business disciplines.

**Keywords:** New Business Disciplines; Dual-Case Pedagogy; Case Teaching; Vocational Education; Industry–Education Collaboration

### 1. Introduction

With the rapid development of the data-driven economy, improving the quality of talent cultivation and deepening reforms in teaching and learning have become critical tasks of our time. The classroom is the primary battleground of education, connecting students on one end and the nation’s future on the other. Educational reform only truly enters “deep waters” when it reaches the classroom level. Classroom reform is the core of China’s vocational education transformation, and innovating pedagogical methods is the top priority of classroom reform [1,2]. The sweeping reform and robust development of national vocational education have created historic opportunities for a classroom revolution.

China’s Implementation Plan for National Vocational Education Reform (2019) explicitly calls for the improvement of professional teaching resource banks, the development of digital resources to meet the needs of “Internet+ Vocational Education,” the use of modern information technology to improve teaching methods, and the deepening of curriculum reform as a key initiative to enhance the quality of vocational teaching [3,4]. In 2024, the newly revised Shandong Provincial Regulations on Vocational Education emphasized “raising the theoretical and practical levels of vocational education,” enabling students to improve their practical capabilities and overall competencies while learning theoretical knowledge. It follows that innovating teaching methods, deepening the classroom revolution, and raising the quality of talent cultivation have risen to the level of national education strategy—this is the mission and responsibility of higher vocational

institutions [5,6].

## **2. Literature Review**

### **2.1 Research on the Case Teaching Method**

The case teaching method was first established by Harvard Law School. In 1870, Christopher Columbus Langdell pioneered this approach, which later expanded to Harvard Medical School and Harvard Business School. Through continuous practice and promotion at Harvard, the method became systematic and influential, and it has since been adopted by universities worldwide [7].

In the 1950s, American scholars redefined the case method by emphasizing the integration of theoretical content with case materials and by compiling new types of textbooks to foster students' practical abilities alongside theory acquisition. They also advocated blending the case method with other instructional approaches to build diversified teaching models and enhance classroom richness and effectiveness [8]. In 1984, the formation of the World Association for Case Method Research and Application marked the transition of the case method from exploration to maturity, drawing more scholars into the field and broadening its disciplinary reach [9].

In China, research on the case method began in 1981, when Lin Youfu and others participated in the first domestic training on case teaching held in Dalian. They systematically summarized the training content and introduced American approaches to business management education. Since 2000, domestic research has entered a period of rapid growth. Wang Qingmei's "A Review of Case Teaching at Home and Abroad" notes ongoing deficiencies in four areas: instructors, students, case quality, and the design of instructional procedures. Luo Xiang's "From the Socratic Method to Constructivist Case Teaching: Theoretical Analyses and Model Exploration" similarly identifies room for improvement in case selection and instructional organization; to further enhance outcomes, more effective teaching models remain to be explored [10].

### **2.2 Research on the "Dual-Case" Pedagogy**

Although research on the case method is abundant, studies specifically on the Dual-Case model remain limited. A CNKI search for the keyword "Dual-Case teaching" yields only 36

publications. Jia Ying et al. (2009), addressing the needs of faculty and students in finance-related institutions for Visual Basic programming, designed two integrated cases based on engineering-oriented development methods: one targeting problems students commonly encounter in daily learning to help them master foundational knowledge and skills; the other focusing on professional application problems [11].

In Treatise on Cold Damage instruction, Zhao Kunpeng (2017) proposed a problem-oriented Dual-Case pedagogy and summarized ten case-pairing patterns—positive/negative, progressive, analogy, mistreatment, correction, transmission to other meridians, viscera-related, root-damage, extension, and alignment—which can be further expanded into multi-case or case-cluster formats. This approach effectively guided students to grasp the dialectical and adaptive thinking characteristic of Traditional Chinese Medicine, with favorable teaching feedback. Wang Min et al. (2020), responding to weak debugging abilities among newly employed university graduates, drew on enterprise surveys to identify skill needs and proposed combining "correct" and "defective" cases to build Dual-Case teaching resources that strengthen students' hands-on competencies [12].

### **2.3 Research on the Classroom Revolution**

The term "classroom revolution" first appeared in a signed article by Minister of Education Chen Baosheng, "Striving to Provide Education that Satisfies the People," published in People's Daily on September 8, 2017. He called for "deepening reform of talent-cultivation models in basic education, launching a 'classroom revolution,' and striving to cultivate students' innovative spirit and practical ability." In vocational education, the "classroom revolution" is articulated in the Action Plan for Improving Quality and Excellence in Vocational Education (2020–2023), which emphasizes: "Promote a 'classroom revolution' in vocational schools, adapt to diversified student sources, and push curriculum reform in depth."

Research on the vocational-education classroom revolution centers on deeply exploring and continuously innovating teaching approaches. Major findings and progress include:

Innovation in Teaching Models: Emphasis on student-centered instruction, participation, and

interaction to enhance autonomous learning; introduction of project-based and workshop-based learning oriented toward practice so students master skills through doing; exploration of classroom models such as “four integrations, five progressions, and tri-partite co-education,” restructuring content to build useful classes that strengthen practical operation and problem-solving abilities.

**Diversification of Teaching Methods:** In light of vocational education characteristics, researchers have explored case analysis, simulation, role-playing, and other methods to boost interest and engagement; modern technologies such as VR and AR are used to build virtual training environments that enhance outcomes and learning experiences.

**Industry–Education Integration and School–Enterprise Collaboration:** Research underscores the importance of integrating industry and education. By partnering with enterprises to co-develop courses, build training bases, and conduct practical teaching, programs better align with workforce needs and increase practical relevance; models such as on-campus enterprise branches or enterprise training centers in collaboration with vocational colleges offer practical opportunities that improve operational skills.

**Transformation of Teachers’ Roles:** The classroom revolution requires teachers to shift from knowledge transmitters to facilitators and collaborators, emphasizing the cultivation of autonomy and innovative thinking. Teachers must continually update educational philosophies and teaching skills and master modern techniques and methods to meet reform demands.

In summary, this paper, grounded in the talent-cultivation goals of higher-vocational programs in the new business disciplines, advances classroom-level innovation in modern information technology, teaching models, instructional methods, curriculum-integrated ideological and political education, and industry–education collaboration. It explores the application of Dual-Case pedagogy to propel the classroom revolution in higher-vocational business programs, aiming to create a suitable course-teaching model, innovate assessment approaches, and address problems such as unengaging case resources, lack of implementation guidelines (or difficulty adhering to them), weak integration with

ideological and political education, and single-track evaluation—thereby filling a gap in the application of Dual-Case pedagogy in business education.

### **3. Constructing Course Objectives for New Business Disciplines Based on Dual-Case Pedagogy**

Constructing course objectives for the new business disciplines begins with an Outcomes-Based Education orientation and the principle of constructive alignment. At the program level, we translate industry expectations—data-enabled decision making, ethical judgment, and value co-creation—into a set of graduate competencies. At the course level, these are articulated as measurable outcomes with performance indicators that specify observable behaviors in Dual-Case tasks. The Dual-Case design juxtaposes a benchmark case representing canonical practice with a contrastive case that is defective, emergent, or context-misaligned, so that students surface transferable principles, boundary conditions, and decision trade-offs rather than memorize single “right” answers.

Objective setting is grounded in a mixed-methods analysis of talent demand under the rise of “new-quality productive forces.” The study samples state-owned and private enterprises as well as SMEs across production and service sectors, and combines executive interviews, supervisor surveys, co-design workshops, and job-posting text mining. Findings are validated through member checking with industry advisors and converted into a competency dictionary with proficiency bands from novice to advanced. This evidence chain ensures that course goals are not only theoretically sound but also empirically anchored in current tasks and tools used by roles such as digital operations analysts, e-commerce product managers, and channel growth specialists.

The resulting competency model integrates knowledge, skills, abilities, and values. Knowledge emphasizes digital business models, data governance and privacy, omnichannel operations, unit-economics and cost-to-serve, foundational machine-learning concepts, and ESG/compliance norms. Skills focus on problem framing, exploratory data analysis, dashboarding, experimentation, process mapping, and stakeholder communication.

Abilities highlight transfer across contexts, decision making under uncertainty, systems thinking, and ethical risk appraisal. Values cultivate customer-centricity, integrity, continuous improvement, and openness to human-machine collaboration. These domains jointly inform the wording of course outcomes and the design of Dual-Case activities.

Within this architecture, course learning outcomes are specified as SMART statements assessed through Dual-Case work. Students diagnose growth or efficiency problems from blended qualitative-quantitative cues and articulate decision hypotheses and constraints; they construct reproducible analytic workflows that justify metric choices and state limits of inference; they generalize decision principles from the benchmark versus contrastive cases and adapt those principles to novel contexts; they communicate to executive stakeholders in concise briefs and pitches that translate analytics into action; they identify data-use, consumer-protection, and labor/ESG risks and recommend safeguards; and they reflect on failures or near-misses in the contrastive case to design monitoring indicators and pivot triggers. Each outcome is supported by performance indicators that make evaluation criteria transparent and observable.

Assessment is integrated with instruction to preserve alignment. A balanced portfolio typically includes a diagnostic case memo to evidence problem framing; a reproducible analytic workflow with appendices to evidence evidence-use; a Dual-Case design dossier to demonstrate principle extraction and contextual adaptation; an executive-level pitch with Q&A to evaluate stakeholder communication; an ethics and compliance brief to assess responsible practice; and a reflective transfer portfolio to capture learning-to-learn. Weightings can be distributed across these artifacts to avoid over-reliance on any single measure, while rubric anchors (exemplary, proficient, developing, beginning) are calibrated through shared exemplars to improve inter-rater reliability.

The teaching-learning workflow embeds the Dual-Case logic from preparation to application. Case pairs are selected to maximize contrast along one or two dimensions—such as strategy logic or data maturity—while holding others relatively constant to isolate principles. Students conduct pre-analysis with minimal scaffolding,

engage in small-group argument mapping to scrutinize the claim-evidence-warrant structure of competing recommendations, synthesize principles and boundary conditions, and then apply them to a fresh context using real or simulated data. Peer critique and enterprise mentor feedback provide external validity, and iterative refinement is expected rather than incidental.

Assurance of learning closes the loop between outcomes and improvement. Direct evidence comes from rubric scores on the analytic workflow, design dossier, pitch, and ethics brief, with attainment thresholds—for example, at least seventy percent of students achieving proficient or above on evidence use and solution design. Indirect evidence includes exit surveys, internship supervisor ratings on aligned behaviors, and platform analytics indicating engagement with Dual-Case resources. Annual reviews with an industry advisory group refresh contrastive cases to reflect new regulations and technologies, and rubrics are revised where systematic under-attainment is observed.

Finally, ethical, legal, and social implications are embedded as a design constraint rather than an afterthought. Privacy-by-design, transparency of automated decisions, fairness in experimentation, and compliance with consumer-protection and labor standards are treated as non-negotiable criteria for solution approval. Each Dual-Case pair includes an explicit ELSI checkpoint, ensuring that students learn to treat performance, integrity, and societal impact as jointly optimized rather than competing objectives. Through this paragraph-based, integrated design, course objectives become actionable levers that align industry-validated competencies with classroom practices and verifiable learning evidence.

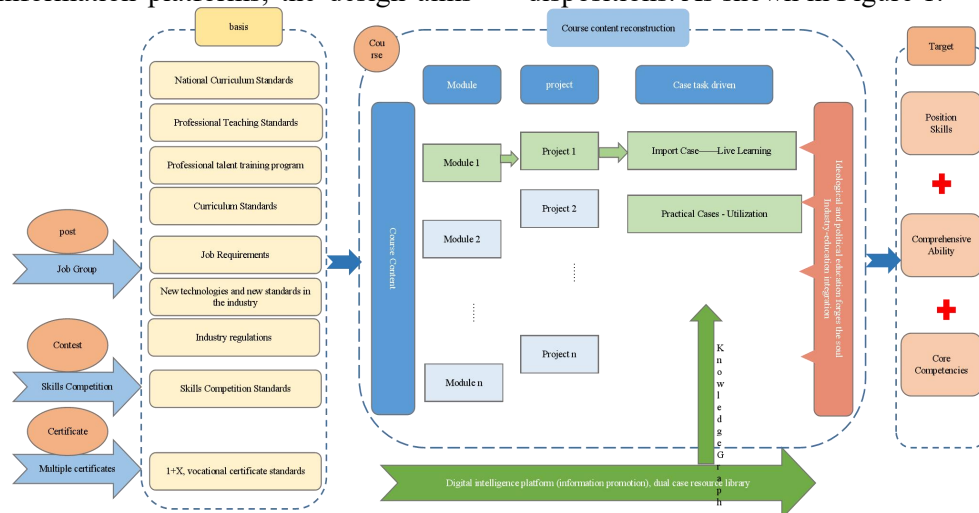
#### **4. Reconstructing Course Content for Higher-Vocational New Business Programs via Dual-Case Teaching**

Guided by Outcomes-Based Education (OBE), we reconstruct courses with students at the center and the goal of joint teacher-student growth. We strengthen integration of ideological and political education and industry-education collaboration. Based on program objectives and students' cognitive characteristics—and aligned to the Post-Course-Competition-Certification standard—we modularize, projectize, and taskify content. We then precisely select cases



from the Dual-Case resource bank and use case-driven tasks to stimulate interest, extend the breadth and depth of knowledge, and reinforce moral cultivation. Supported by modern information platforms, the design aims

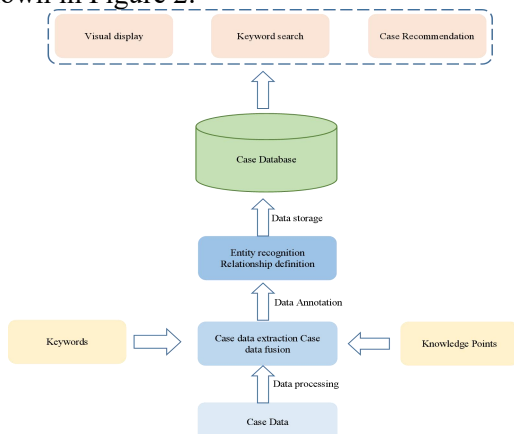
to improve instructional effectiveness, guide students to develop correct outlooks on life, the world, and values, and achieve holistic improvement in knowledge, abilities, and dispositions. As shown in Figure 1.



**Figure 1. Content Reconstruction for Higher-Vocational New Business Courses Using Dual-Case Pedagogy**

## 5. Building a Dual-Case Teaching-Resource Platform

By integrating knowledge graphs with case-based reasoning, we build a Dual-Case teaching-resource platform that uses cases as carriers of course knowledge. Knowledge-graph and case-reasoning methods support course-knowledge recommendation. Information contained in cases is represented in a structured and queryable format to enable accurate case-resource recommendations. As shown in Figure 2.



**Figure 2. Workflow for Constructing a Case Knowledge Graph**

## 6. Reforming Teaching Models for Higher-Vocational New Business Programs

Reforming teaching models for

higher-vocational programs in the new business disciplines requires a coherent design that embeds Dual-Case pedagogy from the moment learners encounter a problem to the point where evidence of learning is verified in practice. We begin by specifying core competency targets that translate macro goals and industry expectations into operational capabilities for entry-level professionals—data-enabled decision-making, process improvement in digitally mediated value chains, customer-centric innovation, and responsible compliance. These competencies are not treated as abstract ideals but as performance standards tied to authentic workplace tasks (e.g., diagnosing conversion bottlenecks in an omnichannel funnel or redesigning a last-mile logistics process under cost-to-serve constraints). Each standard is aligned with observable behaviors and threshold criteria, so that mastery is demonstrated through artifacts and actions rather than seat time.

Building on these targets, the precision application of Dual-Case pedagogy is governed by task-driven selection criteria that privilege cases with high instructional yield. A benchmark case is paired with a contrastive case to foreground principle extraction and boundary conditions. Selection is guided by four filters: relevance to the targeted competency, data richness sufficient for analysis and decision justification, contextual variability that forces

adaptation (sector, segment, regulation), and ethical salience that compels explicit trade-off reasoning. In practice, instructors release minimal scaffolds—problem prompts, data glossaries, and risk checklists—while students interrogate both cases through argument mapping and rapid prototyping. The goal is to move beyond retrospective narration toward prospective decision design: students must not only explain “what happened” but also propose “what should be done next,” with quantified assumptions and contingency plans.

Whole-process integration then threads the Dual-Case logic across preparation, interaction, application, and reflection. Before class, students perform lightweight analytics and narrative framing to enter with hypotheses. In class, facilitated studios replace long lectures; teams pressure-test claims, simulate decisions using small datasets or dashboards, and negotiate stakeholder constraints (marketing, operations, compliance). After class, application sprints translate synthesized principles into a fresh context—often a partner enterprise or a realistic simulation—culminating in an implementation brief with monitoring indicators and pivot triggers. Digital platforms support this flow: a resource hub curates case materials and knowledge-graph links; a collaborative workspace captures decisions and justifications; and an analytics layer logs participation and evidentiary quality, enabling instructors to provide targeted feedback and to identify concepts that require re-teaching.

Finally, diversified assessment operationalizes “process + outcome + value-added” across multiple stakeholders and time points. Process evidence includes versioned notebooks, meeting notes, and decision logs that reveal how teams iterated and learned; outcome evidence covers the quality of the recommendation, its feasibility, and risk controls; value-added is measured by growth in competency bands from baseline diagnostics to post-implementation reflections. Evaluators intentionally extend beyond the instructor: peers review clarity and rigor, industry mentors judge practicality and compliance, and end-users (or user proxies) assess communicative effectiveness and usability. Rubrics are shared in advance and anchored with exemplars to improve inter-rater reliability, while the online system aggregates rubric scores, textual feedback, and engagement traces into a dashboard for continuous

improvement. Through this model, Dual-Case pedagogy becomes an engine that synchronizes competency targets, precise case design, end-to-end learning experiences, and credible, multi-source assessment, thereby aligning classroom activity with the real performance demands of new-business roles.

### **7. Toward a New Teaching Paradigm for Higher-Vocational New Business via Dual-Case Pedagogy**

Advancing a new teaching paradigm for higher-vocational education in the new business disciplines begins with reconfiguring the subject status of teaching and learning so that students become epistemic agents rather than recipients of prefabricated knowledge. Under Dual-Case pedagogy, learners interrogate a benchmark case alongside a contrastive case and assume responsibility for defining problems, assembling evidence, and defending choices in conditions that mimic real managerial ambiguity. The instructor’s role shifts from lecturer to design partner and methodological coach who curates case pairings, calibrates difficulty, and scaffolds inquiry without pre-empting discovery. Agency is operationalized through routines such as student-led problem framings, rotating roles for analyst–challenger–scribe during argument mapping, and negotiated assessment contracts that specify acceptable evidence and standards of proof. These practices have a measurable effect on participation and learning depth because they tie classroom talk to consequential decisions rather than to display of recall.

A paradigm shift also requires expanding learning spaces beyond the physical classroom to a digitally augmented, community-embedded environment in which students interact with data, stakeholders, and consequences. Dual-Case tasks are staged across a blended ecosystem that includes a knowledge-graph-enabled repository for case materials, collaborative workspaces that capture decisions and rationales, and lightweight simulation sandboxes or live dashboards connected to de-identified operational data. Learning thus extends into communities of practice—campus entrepreneurship hubs, municipal digital-commerce initiatives, or partner SMEs—where students validate assumptions with end users and observe how recommendations fare under real constraints such as privacy, procurement, or labor scheduling. Virtual studios, synchronous

critiques with enterprise mentors, and asynchronous reflection journals create multiple temporalities for engagement, enabling students to iterate between analysis and action while leaving auditable traces for feedback and research on learning.

Extending the teaching chain means repositioning instruction from mere knowledge transmission to capability formation across study, work, and civic life. Within Dual-Case work, curriculum-embedded ideological and political education is not appended as a moral afterthought but embedded in decision checkpoints that require explicit consideration of fairness, transparency, consumer protection, decent work, and environmental externalities. Students articulate stakeholder impacts, specify compliance controls, and design monitoring indicators with pivot criteria that balance efficiency with dignity and trust. In doing so, the aims of education migrate from short-term task performance to the cultivation of durable dispositions—prudence in the face of uncertainty, accountability for data use, and solidarity with those affected by automation and platformization. This chain continues into internships and capstones, where prior Dual-Case artifacts seed real projects and provide a baseline against which growth in judgment and responsibility can be assessed.

Finally, diversification of participants makes the paradigm socially robust and pedagogically credible. Instead of a dyad of teacher and student, the learning constellation includes enterprise supervisors who evaluate feasibility and compliance, platform engineers who vet data pipelines and model assumptions, union representatives who surface rights and protections, and community partners who speak to usability and access. Families and alumni contribute contextual intelligence and opportunities for situated practice, while institutional leaders provide governance for data ethics and recognition for co-curricular achievements. Feedback circulates through multi-source rubrics and brief, frequent critiques rather than single high-stakes exams, and a shared dashboard aggregates evidence of process, outcome, and value-added learning to inform course redesign. In this way, Dual-Case pedagogy functions as the integrator of student agency, expanded learning spaces, extended ethical purpose, and plural participation, yielding a teaching paradigm that is both

academically rigorous and tightly coupled to the real performance demands and social responsibilities of contemporary business practice.

## 8. Conclusion

Grounded in verified talent demands and the ongoing “classroom revolution,” this study proposes a Dual-Case teaching system that reconfigures higher-vocational business education across five tightly coupled dimensions—objectives, content, resources, models, and paradigms. By pairing benchmark and contrastive cases, the approach transforms case teaching from retrospective narration into prospective decision design, yielding clearer criteria for case selection, stronger fidelity in instructional implementation, purposeful integration of curriculum-based ideological and political education, and credible multi-source assessment. The contribution is both theoretical and practical: theoretically, it articulates how Dual-Case juxtaposition surfaces transferable principles and boundary conditions; practically, it offers implementable workflows, rubrics, and platform supports that align learning evidence with workplace performance. Limitations—such as uneven enterprise data access, instructor calibration costs, and variability in digital infrastructure—can be mitigated through staged adoption, shared resource banks, and faculty development centered on constructive alignment. Future work should pursue multi-site quasi-experiments to estimate learning gains, cost-effectiveness studies to guide scaling, and design-based research to refine knowledge-graph-enabled resource recommendation. With these steps, the Dual-Case model can be responsibly scaled via digital platforms, enabling sustainable improvements in quality and efficiency for higher-vocational programs in the new business disciplines.

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