Nova Science Press

Journal of Psychology & Education

Vol. 1, No. 3 (2026)

Project-Driven Teaching Reform Based on Real Enterprise Projects in Applied Undergraduate Education

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Funding Statement: This research was supported by a university-level applied research project titled “Intelligent Talent Matching System: Application of Job Demand Prediction Based on Knowledge Graphs and Attention Mechanisms” (Project No. KY2024048).

Journal of Psychology & Education • Vol. 1, No. 3 (2026)

DOI: https://doi.org/10.66581/bf21pr81
Received 20 April 2026 • Accepted: 26 April 2026 • Published 30 April 2026

CITATION

Jiang, M., & Yan, L. (2026). Project-Driven Teaching Reform Based on Real Enterprise Projects in Applied Undergraduate Education. *Journal of Psychology & Education*, *1*(3), 27. https://doi.org/10.66581/bf21pr81

Published by Nova Science Press, HK

Abstract

Objective: To examine the effectiveness of a project-driven teaching reform model based on real enterprise projects in applied undergraduate education. **Methods:** Based on a school-enterprise collaboration project, this study developed an integrated "course-project-training-evaluation" teaching model and embedded real enterprise tasks into the teaching process. The reform included course content reconstruction, project task design, teaching organization optimization, and the establishment of a multiple evaluation mechanism. **Results:** The reform improved students' learning engagement, practical application ability, and job adaptability awareness, and promoted the shift from knowledge-based teaching to task-driven and practice-oriented learning. **Conclusion:** The model helped enhance teaching effectiveness and strengthen the link between curriculum teaching and enterprise needs, providing a useful reference for applied undergraduate institutions seeking to advance school-enterprise collaborative education and curriculum reform.

Key words: project-driven teaching reform; real enterprise projects; school-enterprise collaboration; industry-education integration; applied undergraduate education

1 Introduction

Against the backdrop of digital transformation and industrial upgrading, enterprises increasingly demand application-oriented, interdisciplinary, and practice-ready talents (Chen et al.,2025). This trend requires universities to shift from knowledge transmission to competence development and from subject-centered instruction to more integrated learning experiences (Rodrigo, 2017). However, many applied undergraduate courses still suffer from outdated content, weak practical training, fragmented teaching tasks, and limited evaluation methods, making it difficult to effectively support students' job-related competence (Okolie et al.,2020).

The problem is particularly evident in interdisciplinary courses involving data analysis, artificial intelligence applications, human resource management, and enterprise decision support, where students often remain at the level of conceptual understanding and lack opportunities to connect knowledge with authentic work tasks. As a result, students may complete a course with acceptable exam results while still lacking confidence in dealing with real workplace problems, collaborative project tasks, and data-supported decision making. In applied undergraduate education, such a gap directly affects the quality of talent cultivation and weakens the relevance of the curriculum to industry needs.

In response, this study integrates real enterprise problems, development tasks, and practical scenarios into classroom teaching through a school-enterprise collaboration project and explores a project-driven approach to teaching reform. The selected project focuses on an intelligent talent matching system and provides a relatively complete chain of practical tasks, including job demand identification, information extraction, relationship structuring, matching logic design, iterative optimization, and achievement presentation. Compared with simulated cases written solely for classroom use, a real enterprise project offers stronger authenticity, clearer task orientation, and more direct links to job competence. It therefore creates favorable conditions for integrating course content, project practice, practical training, and evaluation. On this basis, the present study aims to answer a practical educational question: how can a real enterprise project be transformed into a sustainable teaching carrier, and how can such transformation help applied undergraduate education move from knowledge-based teaching to competence-oriented learning?

2 Practical Foundation and Problem Analysis of the Teaching Reform

2.1 Project Foundation

This teaching reform is based on a real enterprise project and stable school-enterprise collaboration, with clear problem orientation and solid practical conditions. Although the partner enterprise has established a relatively mature recruitment system, it still faces such problems as imprecise identification of job demand, insufficient efficiency in talent matching, and relatively high pressure in talent turnover. The intelligent talent matching project responds directly to these practical needs in human resource management and job fit. Compared with conventional classroom content, this type of project provides authentic scenarios, integrated tasks, and complex problem structures, all of which are conducive to curriculum reform. In addition, earlier collaboration between the university and the enterprise, as well as related research and case analysis conducted by the teaching team, created a practical basis for transforming real enterprise tasks into teaching tasks. This foundation is important because project-driven reform cannot rely on abstract teaching ideas alone; it requires access to real problems, institutional support, and a stable practice platform. The project examined in this study offered these conditions and therefore provided a realistic starting point for curriculum reform.

2.2 Current Problems in Teaching

Current teaching does not connect closely enough with enterprise job requirements. Students' learning of such content as knowledge graphs, intelligent recommendation, and job analysis often remains at the level of concepts, definitions, and isolated classroom examples, with limited opportunities for integrated application in authentic project contexts. At the same time, classroom teaching still relies heavily on teacher explanation, while task-driven learning and project practice remain relatively insufficient. This weakens students' development in problem diagnosis, scheme design, teamwork, communication, and transfer of knowledge to practice. In terms of evaluation, many courses still depend primarily on final or result-oriented assessment.

Less attention is given to process performance, project participation, practical output, and reflective improvement, making it difficult to comprehensively capture students' competence development in real task situations. These problems reveal that curriculum reform in applied undergraduate education should not only add new content, but also redesign the teaching process, learning tasks, and evaluation logic.

2.3 Necessity of the Teaching Reform

In the context of cultivating application-oriented undergraduate talents, curriculum reform should not remain at the level of updating knowledge content alone, but should place greater emphasis on competence development, practical transfer, and job adaptability. Real enterprise projects make such reform especially necessary because they can embed classroom learning in authentic work situations, allowing students to experience the full process of problem analysis, task decomposition, scheme design, collaborative implementation, and outcome presentation. This process helps students move from "knowing" to "doing," and from isolated knowledge acquisition to integrated competence generation. It also helps teachers redesign teaching around what students should be able to perform, rather than only what they should remember. Therefore, project-driven reform based on real enterprise tasks has clear practical necessity in improving the relevance, applicability, and effectiveness of curriculum teaching and in promoting the transformation from knowledge-based teaching to task-driven and practice-oriented learning.

3 Objectives and Overall Approach of the Teaching Reform

3.1 Reform Objectives

This reform is oriented toward the cultivation of application-oriented undergraduate talents and aims to promote the transformation of teaching from knowledge transmission to competence

development and literacy enhancement. At the knowledge level, it helps students understand the concepts and application logic of knowledge graphs, attention mechanisms, job demand forecasting, and talent matching. At the ability level, it focuses on cultivating students' data processing ability, project analysis ability, interdisciplinary integration ability, teamwork ability, and problem-solving ability. At the literacy level, it enhances students' job awareness, innovation awareness, and career development awareness, thereby improving the practical value and educational effectiveness of the course.

3.2 Overall Approach

This reform takes a real enterprise project as the driving force and the development tasks of job demand forecasting and talent matching system as the main line, and constructs an overall framework of "course content reconstruction - project task embedding - practice platform support - multiple evaluation and feedback." By transforming real enterprise needs, key tasks, and practical processes into course task chains, the reform integrates knowledge learning, project practice, and competence development, and promotes the alignment of course content with job requirements, the integration of teaching with project practice, and the connection of evaluation with competence development.

3.3 Theoretical Basis

The reform is informed by several complementary educational perspectives. First, constructive alignment emphasizes that learning outcomes, teaching activities, and assessment tasks should be aligned so that students are consistently guided toward meaningful competence development (Hristov et al., 2023; Biggs & Tang, 2011; Biggs, 1996). This idea supports the present reform because the course does not simply introduce enterprise cases as supplementary materials; rather,

it reconstructs teaching content, tasks, and evaluation around a shared project objective. Second, experiential learning highlights that effective learning develops through concrete experience, reflective observation, abstract conceptualization, and active experimentation (Morris,2020; Kolb, 1984). A real enterprise project provides exactly such a cycle: students encounter practical problems, reflect on them, connect them with course concepts, and test their understanding through project outputs. Third, project-based and problem-based learning research shows that students' higher-order thinking, collaboration, and transfer of learning can be strengthened when knowledge is organized around complex, meaningful tasks rather than fragmented exercises (Thomas, 2000; Hmelo-Silver, 2004; Prince & Felder, 2006). Finally, authentic assessment theory suggests that evaluation is more educationally meaningful when students demonstrate competence through tasks that resemble real professional practice (Gulikers et al., 2004). These perspectives jointly support the use of a real enterprise project as the carrier of teaching reform. They also justify the integrated design of course content reconstruction, project task chains, school-enterprise collaborative practice, and multiple evaluation mechanisms in the current study.

To strengthen the connection between curriculum teaching and real enterprise tasks, this study reconstructed the original course content into modular units based on the Intelligent Talent Matching System project. The course content was reorganized into six modules: job demand analysis and project scenario cognition, knowledge graph fundamentals and structured job information processing, attention mechanism and key feature identification, job demand forecasting and talent matching logic, system optimization and feedback evaluation, and project reporting and outcome presentation. These modules correspond to the project flow from demand identification and information processing to scheme design, optimization, and feedback, while also matching students' learning progression from conceptual understanding to practical

application. Such modular reconstruction helps avoid the common problem of fragmented knowledge delivery in traditional teaching. Instead of treating concepts as isolated points, the course links them through a coherent project logic, enabling students to understand not only what each concept means but also where and why it is used. In this way, course knowledge becomes more contextualized, integrated, and usable.

4.1 Reconstructing the Course Content System

On the basis of modular course reconstruction, this study further decomposed the development process of the real enterprise project into a progressive project task chain. The tasks included analyzing enterprise job demands and talent pain points, extracting key entities from job descriptions and résumés, constructing a preliminary job-skill relationship graph, designing matching logic and recommendation rules, completing a system prototype or project scheme, and conducting project reporting, defense, and reflective optimization. The task chain was arranged according to teaching weeks and learning progression so that students could gradually move from problem awareness to data handling, logical design, practical demonstration, and reflective improvement. Transforming a complex enterprise project into staged and executable learning tasks reduced the difficulty of participation, especially for students who had limited prior experience with interdisciplinary project work. More importantly, it provided a stable structure for classroom teaching, group collaboration, formative feedback, and process evaluation. The project task chain therefore served not only as a teaching arrangement, but also as the core mechanism linking knowledge learning, competence training, and outcome generation.

Table 1 Teaching Module Design and Competency Development Framework

Teaching Module	Main Content	Main Competence Focus

Teaching Module	Main Content	Main Competence Focus
Module 1:Job Demand Analysis and Project Scenario Cognition	Enterprise needs, job background, project task understanding	Problem awareness; job awareness
Module 2: Knowledge Graph Fundamentals and Structured Job Information	Structured processing of job, skill, and talent information	Information integration ability
Module 3: Attention Mechanism and Key Feature Recognition	Logic of key feature extraction and screening	Data analysis ability
Module 4: Job Demand Forecasting and Talent Matching Logic	Demand forecasting, matching rules, scheme design	Project analysis ability
Module 5: System Optimization and Feedback Evaluation	Result feedback, optimization, iterative improvement	Problem-solving ability
Module 6: Project Reporting and Result Presentation	Project summary, result presentation, reflective improvement	Expression ability; collaboration ability

4.2 Constructing the Project Task Chain

To ensure the effective implementation of project-based and task-driven learning, this study simultaneously promoted the construction of a school-enterprise collaborative practice platform.

The platform connected enterprise needs, project development processes, and teaching implementation, providing students with learning scenarios closer to workplace reality. Supported by authentic task contexts from the enterprise, institutional and resource support from the university, and the construction of a training base, the course extended from classroom explanation to project practice. In educational terms, the platform played at least three roles. It provided authentic situations in which students could understand the applied value of course knowledge; it offered practical conditions for continuous training, scheme testing, and outcome display; and it created a collaborative environment in which university teachers and enterprise mentors could jointly guide students. Such a platform is particularly important for applied undergraduate education because competence development often depends on repeated exposure to realistic tasks and iterative feedback rather than one-time classroom performance.

Table 2 Project Task Arrangement and Competency Development Plan

Task No.	Project Task	Main Teaching Content	Week(s)	Main Competence Focus
Task 1	Analyze enterprise job demand and talent pain points	Enterprise background, job demand sorting, talent turnover and matching problem analysis	Week 1	Job awareness; problem analysis ability
Task 2	Extract key entities from job descriptions and résumés	Job text parsing, résumé information identification, key element extraction	Week 2	Information extraction ability; data processing ability
Task 3	Construct the	Relationship sorting and	Weeks 3–	Knowledge integration

Task No.	Project Task	Main Teaching Content	Week(s)	Main Competence Focus
	initial job-skill relationship graph	structured representation of job, skill, and talent information	4	ability; structured thinking ability
Task 4	Design matching logic and recommendation rules	Job demand forecasting ideas, matching rule design, recommendation logic construction	Weeks 5–6	Project analysis ability; scheme design ability
Task 5	Complete a system prototype or solution presentation	System prototype design, function explanation, project result formation	Week 7	Practical application ability; result transformation ability
Task 6	Conduct project reporting, defense, and reflective improvement	Project reporting, defense, feedback summary, and optimization	Week 8	Expression and communication ability; teamwork ability; reflective improvement ability

4.3 Building a School-Enterprise Collaborative Practice Platform

To improve the practical and interactive nature of the course, this study adopted a teaching organization model that combined classroom instruction with project discussion, collaborative guidance from university teachers and enterprise mentors, group-based project development with

staged reporting, and online learning with offline practical training. Necessary theoretical instruction was still retained, but it no longer functioned as the sole center of the teaching process. Instead, teachers used theory to frame project understanding, introduce methods, and support students' task completion. Real project scenarios and concrete tasks were then introduced to organize discussion, group collaboration, and scheme development. This organizational reform reflected a shift from teacher-centered one-way transmission to learner engagement in meaningful tasks. The combination of online and offline settings further expanded the learning space: students could access materials, receive tasks, and communicate online, while conducting operation, verification, and presentation in offline practice settings. Through this arrangement, students were encouraged to learn through participation, discussion, experimentation, and reflection.

4.4 Reforming the Teaching Organization

To more comprehensively reflect students' learning performance and competence development in real project contexts, this study established a multiple evaluation mechanism that integrated process evaluation, project evaluation, multi-subject evaluation, and achievement-oriented evaluation. Process evaluation focused on classroom participation, task completion, staged reports, and learning engagement; project evaluation examined scheme design, model logic, and practical effects; multi-subject evaluation combined teacher evaluation, enterprise mentor evaluation, peer assessment, and self-reflection; and achievement-oriented evaluation assessed project reports, system demonstrations, and course summaries. This mechanism was designed to overcome the limitations of a single final assessment model. In project-driven teaching, competence is often manifested through continuous participation, collaborative contribution, iterative adjustment, and quality of practical outputs. Therefore, evaluation should not only judge

whether students have obtained a final answer, but also examine how they analyze problems, allocate tasks, respond to feedback, and refine their schemes. The multiple evaluation mechanism used in this reform thus supported both fairer judgment and stronger learning guidance.

5 Implementation of the Teaching Reform

5.1 Participants and Duration

The reform was implemented among 56 junior students majoring in management-related disciplines in a related course over an 8-week period. Junior students were selected because they had already acquired a basic foundation in management, job analysis, and course project participation, enabling them to engage in job demand analysis, task decomposition, scheme design, and outcome presentation under the guidance of teachers and a real enterprise project. The choice of management-related students was also appropriate because the project centered on job demand identification, talent matching, and organizational management, which aligned well with the curriculum characteristics of such majors. In addition, this student group was at a stage where career cognition was becoming more concrete, making it meaningful to introduce job-oriented project tasks. The combination of participant background, course content, and project requirements therefore provided a relatively suitable implementation context for the reform.

Table3 Evaluation Framework for Project-Based Teaching

Evaluation Dimension	Evaluation Content	Evaluators	Purpose
Process evaluation	Class participation, task completion, stage reports	Teachers; student groups	Focus on learning process and task implementation
Project evaluation	Scheme design, model logic,	Teachers; enterprise	Assess project analysis and

Evaluation Dimension	Evaluation Content	Evaluators	Purpose
	application effects	mentors	practical application ability
Evaluator diversity	Teacher evaluation, enterprise mentor evaluation, peer assessment, self-reflection	Teachers; enterprise mentors; students	Improve comprehensiveness and objectivity of evaluation
Outcome evaluation	Project reports, system demonstrations, course summaries	Teachers; enterprise mentors	Examine result quality and comprehensive expression ability

5.2 Implementation Procedure

The reform was carried out in three stages: preparation, implementation, and summary. In the preparation stage, enterprise investigation, job demand sorting, and project content screening were conducted to clarify the authentic task scenarios on which the reform would rely. Based on this work, a course task bank connected to teaching objectives was formed. In the implementation stage, project tasks were embedded into classroom teaching and practical training in accordance with the teaching schedule. Students carried out project practice around such tasks as job demand analysis, information extraction, matching logic design, and staged reporting. Teachers provided theoretical explanation, process guidance, and feedback, while enterprise mentors helped connect the tasks with workplace expectations. In the summary stage, students completed outcome display, project defense, and comprehensive evaluation. Feedback from different evaluation sources was then used to form a closed loop for teaching improvement and student development. This staged procedure ensured that reform implementation was not reduced to a single project presentation, but became a sustained teaching process with preparation, action, feedback, and reflection.

5.3 Support Conditions

To ensure smooth implementation, a relatively complete support mechanism was established. The enterprise provided authentic data sources, job demand information, and task scenarios, which gave the course practical grounding. The university offered institutional, organizational, and financial support through its mechanisms for curriculum reform, school-enterprise collaboration, and industry-education integration. The practice base and related platforms provided technical and contextual support for project training, task implementation, and outcome presentation. Meanwhile, the teaching team played a dual role in course instruction and project guidance, coordinating theoretical explanation, task design, process supervision, and achievement review. Together, these forms of support reduced the common implementation risks of project-driven reform, such as insufficient practical resources, disconnected enterprise participation, or lack of teaching coordination. They also made it possible for the reform to operate in a more stable and sustainable way.

6 Outcomes of the Teaching Reform

6.1 Improvement in Students' Learning Engagement

Under the real project-driven model, students' learning status gradually shifted from passive listening to active participation. Compared with traditional knowledge-receiving learning, the introduction of project tasks increased students' interest in job demand analysis, talent matching, and scheme design, and improved their willingness to take part in classroom discussion, staged reporting, and outcome presentation. During implementation, students showed stronger engagement in task discussion, group cooperation, and classroom interaction, and most groups maintained steady progress in completing assigned tasks. This change is educationally important

because learning engagement in applied undergraduate education is not simply a matter of attention in class; it is closely related to students' willingness to invest effort in complex tasks, communicate with peers, and repeatedly revise their work. The project-driven design created a sense of relevance and responsibility, making the learning process more purposeful. Students were no longer only receivers of explanations, but participants in an ongoing project process. Such changes indicate that real project contexts can effectively activate learning motivation and improve classroom participation.

6.2 Improvement in Practical and Comprehensive Application Abilities

By embedding real enterprise projects into curriculum teaching, students gradually improved their abilities in data processing, demand analysis, scheme design, and collaborative communication during task implementation. In such tasks as sorting job information, decomposing project tasks, designing matching logic, and presenting project outcomes, students were able to apply course knowledge to actual problem solving rather than merely reproducing isolated concepts. Most student groups completed the assigned project tasks, and a majority were able to present relatively complete project schemes and outcome reports. This suggests that the reform supported not only practical competence, but also the integration of multiple abilities. In applied undergraduate education, comprehensive application ability is reflected in whether students can connect methods with context, transform information into workable solutions, and communicate these solutions clearly in a team setting. The present reform helped create such opportunities. Through repeated engagement in authentic tasks, students improved their ability to

connect abstract knowledge with operational demands, which is a core indicator of applied talent cultivation.

6.3 Stronger Alignment Between Curriculum Teaching and Job Requirements

After real enterprise projects entered the classroom, the connection between course content and job requirements became closer. Previously, students' understanding of relevant knowledge often remained at a conceptual level, and they might not have recognized how such content as job demand identification, talent matching, data organization, and recommendation logic could be used in real professional settings. Under the project-driven model, however, students learned these topics while working on tasks derived from enterprise needs, which made the applied value of course knowledge more visible. As a result, the course gained stronger practical orientation and clearer relevance to workplace competence. This alignment is especially important for management-related majors, whose curriculum quality is often judged by whether students can understand organizational problems and respond to them with feasible solutions. By embedding enterprise tasks into teaching, the reform helped narrow the gap between curriculum knowledge and job practice, thus strengthening the applied character of the course.

6.4 Enhanced Effects of School-Enterprise Collaborative Education

The reform based on real enterprise projects not only improved the practical nature of the course, but also strengthened the actual effect of school-enterprise collaborative education. During implementation, enterprise mentors participated in course guidance and achievement review, while authentic enterprise cases and task scenarios were effectively introduced into classroom teaching. Students therefore had more opportunities to encounter real work situations, understand practical expectations, and experience how theoretical learning could support project

development. At the same time, the practice base and related platforms supported task implementation, project training, and outcome presentation, extending learning from the classroom to a more practice-oriented educational space. This indicates that school-enterprise collaboration in the reform was not limited to symbolic cooperation or resource provision. Rather, it functioned as a substantive educational mechanism that linked project sources, teaching processes, practice conditions, and evaluation participation. Such collaboration is valuable for applied undergraduate education because it makes talent cultivation more open, contextualized, and responsive to industry needs.

7 Discussion

The outcomes of this reform can be understood from the perspective of competence-oriented curriculum design. In traditional classroom teaching, students often learn concepts, methods, and procedures separately, and their performance is mainly judged through written tests or isolated assignments. Such an arrangement may help students remember knowledge, but it does not necessarily help them develop the capacity to use knowledge in complex situations. The present reform addressed this limitation by organizing learning around a real enterprise project. This arrangement increased task authenticity, made the purpose of learning clearer, and required students to coordinate multiple forms of knowledge and skill in order to complete project tasks. This is consistent with the idea of constructive alignment: when learning outcomes, teaching activities, and assessment are aligned around meaningful tasks, students are more likely to develop usable competence rather than fragmented knowledge (Biggs, 1996; Biggs & Tang, 2011).

The reform also reflects the logic of experiential and project-based learning. Students did not encounter knowledge graph concepts, matching logic, or job demand analysis as isolated theoretical units. Instead, they learned these through engagement with practical problems, team discussion, task implementation, outcome display, and reflective improvement. In this sense, the course created a learning cycle in which experience, reflection, conceptual understanding, and action were closely connected (Kolb, 1984). The project task chain supported progressive learning by reducing the complexity of the full enterprise project into achievable stages, while still preserving the authenticity of the overall problem. This design helped students gradually build confidence and competence. Prior studies on project-based and problem-based learning have similarly shown that meaningful tasks can enhance higher-order thinking, collaboration, and transfer of learning (Thomas, 2000; Barron et al., 1998; Hmelo-Silver, 2004). The present reform provides a practical example of how such principles can be implemented in management-related applied undergraduate courses.

Another important implication of the findings lies in the relationship between curriculum teaching and job requirements. Applied undergraduate education is often expected to cultivate talents who can adapt to practical work contexts, yet many courses still operate under a content-dominant logic. In such courses, the teacher's primary responsibility is to finish a syllabus, while students' responsibility is to master examinable points. The school-enterprise collaboration project shifted this logic by making enterprise needs a visible part of teaching design. Students had to understand not only "what" they were learning, but also "why" the knowledge mattered and "how" it could be transformed into solutions. This strengthened their awareness of job fit and made curriculum learning more professionally meaningful. The reform therefore suggests

that the value of school-enterprise collaboration does not lie only in inviting external partners to the classroom, but in using enterprise tasks to redesign the structure of learning itself.

The multiple evaluation mechanism further strengthened the educational value of the reform. In many conventional courses, evaluation is dominated by final scores, which can neither fully represent students' practical contribution nor effectively guide improvement during learning. In the present reform, process performance, project quality, achievement presentation, peer input, self-reflection, and mentor feedback were all incorporated into evaluation. This made assessment both more developmental and more authentic. Students were encouraged to view evaluation not simply as a judgment at the end of the course, but as an ongoing source of feedback that could improve their performance. From a teaching perspective, this mechanism also gave instructors richer information about students' participation, difficulties, and growth. It therefore supported more targeted intervention and more meaningful assessment of competence.

From the perspective of curriculum governance, the reform also provides a practical route for balancing academic content and industry relevance. A common concern in applied undergraduate education is that close cooperation with enterprises may narrow the curriculum to immediate technical needs and weaken broader educational value. The present reform suggests a different possibility. Real enterprise projects need not replace academic learning; instead, they can reorganize and deepen it. In this study, students still learned conceptual content, but concepts were taught in relation to project tasks and reflective use. This made learning both more concrete and more intellectually demanding because students had to interpret, apply, discuss, and revise their understanding in action. Therefore, project-driven reform should not be understood merely as adding practice to teaching; it is better understood as redesigning the relationship between theory and practice in the curriculum.

The reform further highlights the importance of teacher roles in project-driven teaching. When real enterprise tasks are introduced into the classroom, teachers are no longer only lecturers or assessors. They also become task designers, process coordinators, feedback providers, and mediators between academic requirements and enterprise expectations. This expanded role requires teachers to possess not only disciplinary knowledge, but also curriculum integration ability and practical coordination skills. At the same time, enterprise mentors are not expected to replace teachers. Their main value lies in providing contextualized guidance, workplace perspectives, and criteria related to task authenticity. In this sense, successful school-enterprise collaborative education depends on clear role allocation and sustained communication. The present study indicates that when teachers and enterprise mentors work in complementary ways, students benefit from both pedagogical support and practical relevance.

A further implication concerns the design of interdisciplinary learning in management-related education. The enterprise project used in this study involved not only organizational and human resource issues, but also data thinking, information structuring, recommendation logic, and platform-based implementation. In many university curricula, such dimensions are separated into different courses or even different majors, which can make it difficult for students to understand how knowledge from different domains works together in practice. By contrast, the project-driven reform provided an interdisciplinary task environment in which management knowledge was learned together with technological awareness and practical reasoning. Students did not need to become software engineers, but they did need to understand how data, logic, and organizational needs interact in a practical system. This kind of learning is highly relevant to the development of contemporary applied talents, especially in fields where management work increasingly relies on digital tools and data-supported judgment. The reform therefore

demonstrates that a real enterprise project can become a bridge between disciplinary learning and interdisciplinary application. It also suggests that applied undergraduate curricula should not isolate technical literacy from professional competence, but should build opportunities for students to understand how different knowledge domains jointly contribute to workplace problem solving.

The present study also has implications for the sustainability of teaching reform. Many curriculum reforms achieve short-term innovation through one-off activities, special competitions, or temporary case teaching, but they often fail to become stable parts of regular teaching. The model developed in this study has a stronger possibility of sustainability because it is built on a replicable logic rather than on a single classroom event. Course content was reconstructed around project modules, implementation was organized through a visible task chain, platform support was linked to practice conditions, and evaluation was redesigned to match the logic of project participation. These features mean that the reform can be repeated, adjusted, and transferred to later cohorts with relatively clear procedures. At the same time, the reform highlights that sustainability depends on continued cooperation between the university and the enterprise. If enterprise participation weakens or project resources are not updated, the authenticity and value of project-driven teaching may decline. Therefore, long-term curriculum reform should institutionalize school-enterprise collaboration, regularly update project resources, and support teachers in developing the competencies needed for project design and guidance. Only under such conditions can project-driven reform move from experimental practice to normalized curriculum construction.

In addition, the findings have practical significance for assessment reform in applied undergraduate education. Traditional assessment often privileges efficiency and standardization,

which makes it easier to manage large classes but less effective in identifying real competence differences among students. Project-driven teaching creates a need for richer assessment because students contribute in different ways across the learning process. Some perform strongly in information collection and task analysis, some in organizing collaboration, and some in presenting and refining final schemes. The multiple evaluation mechanism adopted in this study provided a more balanced way of recognizing such differentiated performance. It also encouraged students to treat feedback as a resource for revision rather than as a final judgment. For institutions seeking to improve the quality of applied talent cultivation, this approach is valuable because it aligns assessment with the diversity and complexity of real professional tasks. In this sense, the reform does not only improve one course; it also offers a concrete model for rethinking how curriculum quality can be assessed in competence-oriented higher education.

8 Limitations and Future Improvement

Despite its positive outcomes, this study has several limitations. First, the reform was implemented among 56 junior students from management-related disciplines within a relatively short period of eight weeks. Although this scope was suitable for an initial teaching reform practice, the sample size and implementation duration limit the generalizability of the findings. Future studies may include students from other majors, grade levels, or institutions in order to test whether the model can be effectively transferred to broader contexts. Second, the present study mainly evaluated reform outcomes through teaching observation, project completion, classroom performance, and overall student feedback. While such evidence is meaningful for a teaching reform study, the use of more systematic quantitative tools, such as structured questionnaires, rubric-based comparative scores, or longitudinal follow-up data, would further strengthen the persuasiveness of the conclusions.

Third, the current reform was based on one specific enterprise project related to talent matching and job demand forecasting. Although this project was highly suitable for management-related and interdisciplinary teaching, future reforms could explore whether other enterprise projects with different professional logics produce similar educational effects. Fourth, the participation of enterprise mentors and practice platforms, though effective in the present case, may vary across institutions because of differences in resource availability, collaboration mechanisms, and curriculum scheduling. Therefore, future work should pay greater attention to the sustainability of school-enterprise collaboration, the standardization of project resources, and the institutional mechanisms needed to support long-term reform. Even with these limitations, the present study provides a meaningful and transferable path for integrating real enterprise projects into applied undergraduate teaching.

9 Conclusion

Relying on a real enterprise project and oriented toward the cultivation of application-oriented undergraduate talents, this study explored a project-driven teaching reform path in the context of school-enterprise collaboration and constructed an integrated "course-project-training-evaluation" model. By embedding authentic enterprise tasks into teaching, the reform promoted coordinated improvement in course content reconstruction, project task implementation, practice platform support, and multiple evaluation feedback. The findings indicate that this model contributed to students' learning engagement, practical competence, comprehensive application ability, and awareness of job fit. More broadly, the reform demonstrated how real enterprise projects can serve as effective teaching carriers in applied undergraduate education. They can help transform teaching from knowledge transmission to task-driven and practice-oriented learning, strengthen the connection between curriculum teaching and industry needs, and

improve the quality of school-enterprise collaborative education. Although the present study was conducted within a limited implementation scope, it provides a useful practical reference for universities seeking to advance curriculum reform under the background of industry-education integration.

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