

Digital Multimodality Empowers the Construction of Specialized and Innovative Integrated Courses in Private Undergraduate Universities: Model Construction and Practical Verification

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Abstract: Under the dual strategic orientations of nurturing new-quality productive forces and building a powerful education country, specialized and innovative integrated courses in private undergraduate universities face practical dilemmas such as superficial integration, single mode, and lack of evaluation. Based on constructivist learning theory and systemic functional linguistics, this study focuses on the characteristics of private undergraduate students, including weak autonomous learning ability, insufficient logical thinking, and strong practical needs. It constructs a specialized and innovative integrated teaching model of "1 center, 2 means, 3 combinations, and 4 capabilities", designs a hierarchical and progressive implementation path of "theoretical teaching - theoretical innovation - theoretical practice", and establishes a three-dimensional evaluation model combining process, result, and ability. Taking the course Marketing Planning as a pilot, 80 on-campus students were selected for a one-year teaching practice, and the effects were verified through questionnaire surveys, case analyses, competition practices, and other methods. The study aims to effectively solve the problems in the construction of specialized and innovative integrated courses in private undergraduate universities, realize the transformation from "factor aggregation" to "ecological construction" by means of digital multimodality, and provide practical support for cultivating innovative and applied talents.

Keywords: Digital multimodality; Private undergraduate universities; Integration of professional and innovative education; Curriculum construction; Teaching model

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The Plan for Building a Powerful Education Country (2024-2035) clearly puts forward the overall requirements of "comprehensively constructing a vocational education system integrating industry and education" and "shaping a new form of diversified school-running and industry-education integration", taking the integration of professional and innovative education as the core starting point for higher education to serve the cultivation of new-quality productive forces. As an important part of higher education, private undergraduate universities shoulder the important mission of cultivating applied and innovative talents. However, in the process of policy implementation, they face practical constraints such as a large resource gap with public universities and unbalanced basic abilities of students, so it is urgent to explore a path of integration of professional and innovative education suitable for their own development.

1. Practical Dilemmas in the Construction of Specialized and Innovative Integrated Courses in Private Undergraduate Universities

Firstly, insufficient adaptability between talent supply and demand. The integration of innovation and entrepreneurship education with professional courses is loose, with strong generality but weak professionalism in content. Students generally face the pain point of vague career planning. There is a gap between the curriculum update cycle and industrial technology iteration, making it difficult to meet enterprises' demand for comprehensive abilities combining technological innovation and collaboration.

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Secondly, inadequate implementation of collaborative mechanisms. University-enterprise cooperation mostly stays at the level of internship recommendation and simple co-construction, lacking in-depth collaboration in technological research and development and talent co-cultivation. Due to unbalanced costs and benefits and ambiguous definition of rights and responsibilities, enterprises have insufficient motivation to participate, forming a situation of "universities being enthusiastic while enterprises being cold", and failing to build a closed-loop ecology integrating talent training, technological research and development, and benefit sharing.

Thirdly, backward teaching models and evaluation systems. Traditional teaching is dominated by teachers' lectures, with a single and rigid form. Contemporary college students are more willing to accept digital multimodal teaching models with high interest and strong experience, but existing teaching lacks the integration of multimodal resources and interactive design. The evaluation system focuses on result-oriented indicators, lacking process evaluation and ability evaluation, making it difficult to fully reflect the improvement of students' innovative thinking and practical abilities.

Fourthly, single-function spatial carriers. Teaching scenarios are limited to traditional classrooms, lacking physical carriers integrating teaching, research and development, and production. The depth of digital integration is insufficient, and high-fidelity virtual simulation training scenarios are scarce, which cannot meet the teaching needs of private university students for experience and application of knowledge.

2.Core Concepts and Theoretical Basis

2.1 Definition of Core Concepts

2.1.1 Digital Multimodal Teaching

A diversified teaching model supported by digital technology, integrating multiple modal resources such as text, pictures, videos, audio, and interactive practices. Through online-offline integrated teaching scenarios, it realizes knowledge transmission and ability cultivation, with core characteristics of digital resources, diversified scenarios, and in-depth interaction.

2.1.2 Specialized and Innovative Integrated Courses in Private Undergraduate Universities

Based on the orientation of cultivating applied talents in private undergraduate universities, these courses organically integrate innovation and entrepreneurship education into the professional curriculum system. Through the reconstruction of curriculum objectives, integration of teaching content, and innovation of teaching methods, they realize the coordinated cultivation of professional knowledge, innovative thinking, and entrepreneurial skills. The core goal is to enhance students' employment competitiveness and entrepreneurial potential.

2.1.3 Hierarchical and Progressive Implementation Path

According to students' cognitive laws and ability development stages, the teaching process is divided into three levels: theoretical teaching, theoretical innovation, and theoretical practice. It gradually realizes the progressive cultivation from basic knowledge teaching to innovative thinking training and then to practical ability improvement, with core characteristics of hierarchical objectives, progressive content, and adaptive methods.

2.2 Theoretical Basis

2.2.1 Constructivist Learning Theory

It emphasizes that learning is a process in which students actively construct knowledge rather than passively accept information. Digital multimodal teaching creates an environment for students to actively explore and collaborate in learning by providing rich situational resources and interactive tasks, promoting students' in-depth understanding and flexible application of professional knowledge and innovative and entrepreneurial skills.

2.2.2 Systemic Functional Linguistics

It holds that language, as a social symbol, realizes meaning construction through the synergy of multiple

modalities. This theory provides support for multimodal teaching, emphasizing that the complementarity of multiple modalities such as text, images, sounds, and actions meets the learning style needs of different students and improves the effectiveness and appeal of teaching.

2.2.3 Industry-Education Integration Ecology Theory

It advocates building a closed-loop ecology integrating industry, science and technology, education, and talent chains. Through collaborative governance of multiple subjects, it realizes the in-depth coupling of education and industry. This theory provides a framework for the construction of specialized and innovative integrated courses, emphasizing promoting the systematic reform of teaching content, teaching models, and evaluation systems oriented to the real needs of enterprises.

3.Path Framework for the Construction of Specialized and Innovative Integrated Courses in Private Undergraduate Universities Empowered by Digital Multimodality

3.1 Constructing a Curriculum Content System Integrating Four Chains

Taking industrial demand, scientific and technological research and development, educational transformation, and talent feedback as the logical main line, it realizes the in-depth coupling of curriculum content with the industrial chain, innovation chain, talent chain, and value chain.

Firstly, anchoring the origin of industrial demand. Establish a regular demand collection mechanism through industry associations and cooperative enterprises, and transform enterprises' technical pain points and post competency requirements into curriculum teaching objectives and core modules. For example, in the course Marketing Planning, emerging industrial scenarios such as live e-commerce and community marketing are integrated, and real project tasks such as "rural revitalization agricultural product marketing" and "Gen Z beauty product promotion" are designed.

Secondly, strengthening the empowerment of scientific and technological research and development. Universities and enterprises co-build collaborative innovation centers to jointly carry out applied research and technological tackling. Mature processes and typical technical schemes are transformed into modular training projects, and innovative technologies are transformed into challenging topics for students, realizing the teaching transformation of technical problems and the curriculum reconstruction of scientific research projects.

Thirdly, promoting educational reconstruction. Establish a three-level content transformation system including basic layer, application layer, and innovation layer. The basic layer covers professional basic knowledge and basic concepts of innovation and entrepreneurship; the application layer focuses on business model application and case analysis; the innovation layer emphasizes innovative scheme design and competition practice, forming a coherent and mutually supportive curriculum content ecology.

Fourthly, highlighting the orientation of talent feedback. Aiming at improving students' employment competitiveness and entrepreneurial ability, students' participation in real projects, competition achievements, and innovative schemes are incorporated into curriculum evaluation, promoting the transformation of students' abilities from passive adaptation to positions to active leadership in technological progress.

3.2 Building a Three-Dimensional Collaborative Teaching Model

3.2.1 Adhering to "1 Center"

Taking student development as the center, focusing on students' career planning and ability improvement, and running through the whole process of curriculum design, teaching implementation, and evaluation. Curriculum design adapts to the characteristics of students' weak autonomous learning ability and adopts a gradual teaching rhythm; teaching content balances professionalism and practicality, integrating innovation and entrepreneurship knowledge oriented to post needs; teaching evaluation focuses on the comprehensive consideration of process and result, knowledge and ability.

3.2.2 Innovating "2 Means"

Firstly, basic means: combining teachers' lectures with flipped classrooms, applied in the theoretical teaching stage. Teachers build a knowledge framework through the explanation of core knowledge points and case introduction; students cultivate autonomous learning ability and expression ability through independent collection of enterprise information, group inquiry, and report presentation, realizing two-way interaction between teaching and learning.

Secondly, empowering means: digital multimodal teaching runs through the whole teaching process. Integrate digital resources such as Chaos University's business model courses, China University MOOC's innovation and entrepreneurship topics, enterprise real case databases, Learning Pass interactive platforms, and SPSS data analysis tools. Enrich teaching scenarios and enhance learning participation through visual, auditory, interactive, and practical multimodal forms. Among them, vision can use case pictures and model charts, hearing can adopt teachers' explanations and enterprise mentors' sharing, interaction can take group collaboration and online discussions, and practice can take scheme design and simulation operation.

3.2.3 Deepening "3 Combinations"

Firstly, integrating ideological and political education with professionalism. Integrate ideological and political elements such as honest operation, social responsibility, and family and country feelings into teaching. For example, through cases such as Haidilao's "people-oriented" service concept and rural revitalization marketing projects, realize the unification of value guidance and knowledge transmission.

Secondly, combining cases with models. Select enterprise cases from different industries and development stages, and combine practical business models such as strategic leverage, POM, and POEM to help students sort out innovative and entrepreneurial logic and improve logical thinking and innovation ability.

Thirdly, integrating classrooms with competitions. Taking competitions such as the "CMAU National College Student Market Research and Business Planning Competition" as carriers, combine classroom teaching with competition practice. Through "promoting learning through competitions and teaching through competitions", promote the transformation of professional knowledge into practical abilities, and feed back excellent competition works to classroom teaching.

3.3 Designing a Hierarchical and Progressive Implementation Process

3.3.1 Theoretical Teaching Stage

The core goal of the theoretical teaching stage is to consolidate the foundation and stimulate interest. Teaching content covers professional basic knowledge and introductory concepts of innovation and entrepreneurship. Interesting cases in current enterprise marketing, management, entrepreneurship and other fields are used to stimulate students' learning interest. Teaching methods can combine teachers' lectures, flipped classrooms, and case analyses. Assessment is mainly process-oriented, focusing on students' mastery of basic knowledge and participation.

3.3.2 Theoretical Innovation Stage

The core goal of the theoretical innovation stage is to deepen understanding and cultivate thinking. Teaching content focuses on business model application, brand innovation case analysis, and innovative scheme conception. By in-depth analysis of enterprise cases and systematic explanation of business models, students are guided to combine professional knowledge with innovative and entrepreneurial thinking. Teaching methods can combine case decomposition, business model application, group discussions, and summary sharing. Assessment includes model application assignments, case analysis reports, and innovative scheme conception, focusing on the evaluation of logical thinking and innovative awareness.

3.3.3 Theoretical Practice Stage

The core goal is to strengthen practice and improve abilities. Teaching content mainly includes competition

project guidance, practical scheme optimization, and practical drills, organizing students to participate in discipline competitions and innovative and entrepreneurial projects. Teaching methods adopt a combination of classroom guidance, after-class tutoring, and simulated defense. Assessment includes competition participation, practical scheme quality, and competition results, highlighting the evaluation of practical abilities and achievement transformation.

3.4 Establishing a Multi-Dimensional Collaborative Evaluation System

Based on constructivist learning theory and industry-education integration ecology theory, a three-dimensional collaborative evaluation system combining process, result, and ability is constructed. Through multi-dimensional indicator design, multi-subject participation in evaluation, and multi-data source support, a comprehensive, objective, and accurate measurement of the teaching effect of specialized and innovative integration is realized, breaking the traditional evaluation problems of emphasizing results over processes and knowledge over abilities.

3.4.1 Process Evaluation

Focus on the participation and growth trajectory of the whole learning process, realizing dynamic monitoring and timely feedback of the teaching process. Among them, classroom attendance serves as a basic guarantee indicator, reflecting students' learning initiative and discipline; the completion of preview and assignments evaluates students' autonomous learning effectiveness through digital data such as resource access records and assignment submission quality deposited in the background of Learning Pass; classroom participation comprehensively considers students' investment in case discussions and thinking collisions by combining teachers' classroom observation records and discussion data on online interactive platforms; group collaboration performance quantifies students' communication and coordination, responsibility, and contribution in team cooperation based on group mutual evaluation forms, project division of labor records, and achievement co-creation trajectories, comprehensively capturing the details of ability development in the learning process.

3.4.2 Result Evaluation

Focus on the explicit output and quality verification of teaching achievements, reflecting the practical value of specialized and innovative integration. Case analysis reports serve as the core evaluation carrier, scored by the curriculum group review team from the dimensions of theoretical application, logical structure, and analysis depth; innovative schemes focus on the innovation, feasibility, and landing value of the scheme, with results obtained through joint evaluation by industry experts and teachers; competition achievements are based on objective materials such as competition award certificates and innovative and entrepreneurial project approval documents, directly reflecting students' ability to transform knowledge into practical achievements and highlighting the educational effect of specialized and innovative integration.

3.4.3 Ability Evaluation

It focuses on the comprehensive improvement of students' core literacy, in line with the essential requirements of cultivating applied talents. The evaluation process adopts a multi-subject collaborative model including teacher evaluation, student self-evaluation, and curriculum group tutor evaluation. Teachers make professional judgments on students' ability development based on observations throughout the teaching process; students reflect on their own growth and deficiencies through self-evaluation, strengthening their subject awareness; curriculum group tutors provide targeted evaluations from the perspective of enterprise application combined with the real post needs of enterprises and project practice performance. The multi-dimensional and multi-perspective collaborative evaluation ensures the comprehensiveness and objectivity of the assessment of students' core abilities, realizing "promoting learning through evaluation, promoting reform through evaluation, and promoting construction through evaluation".

References:

- [1] Xu,J.L.(2025).Path innovation of constructing a new ecology of industry-education integration driven by new-quality productive forces in the"Double High-Level Plan".Chinese Vocational and Technical Education,(13/14),29-35.
- [2] Liu,J.J.,&He,Z.(2020).Dimensions and connotation research on deepening industry-education integration in higher vocational colleges under the"Double High-Level Plan".Research in Educational Development,(17),65-72.
- [3] National Center for Vocational Education Development.(2025).China Vocational Education Development Report.Beijing:Higher Education Press.
- [4] Li,Y.,&Shao,Q.(2025).Update mechanism and implementation strategy of digital curriculum content in vocational colleges.Education Development and Innovation,(17),45-51.
- [5] He,Z.(2024).Insight and grasp of the essential connotation and basic laws of industry-education integration.Chinese Vocational and Technical Education,(15),18-24.
- [6] Chen,K.Z.,&Mao,C.M.(2025).Strategy research on high-level industry-education integration empowering the development of new-quality productive forces.China Higher Education,(5),36-40.
- [7] Tang,Y.Z.(2024).Promoting the in-depth development of integration between vocational education and industry under the background of building a powerful education country.Chinese Ethnic Education,(2),28-31.
- [8] Guo,J.(2025).Focusing on the comprehensive deepening reform of vocational education under the strategy of building a powerful education country-New progress in research and practice of vocational education boosting the construction of a powerful education country in 2024.Chinese Vocational and Technical Education,(2),15-21.
- [9] Ministry of Education.(2024).Shortage of high-level skilled talents:How do vocational education systems in various countries respond to challenges?[EB/OL].(2024-11-21)[2025-07-13].http://www.moe.gov.cn/jyb_xwfb/xw_zt/moe_357/2024/2024_zt20/mtjj/202412/t20241217_1167358.html.