The Construction and Practice of the Entrepreneurship Plan Training Model from the Perspective of "Digital Twin" : An Interdisciplinary Integration Exploration Based on the Immersive Business War Simulation Platform

Weiping Huang*

Guangxi University of Finance and Economics., Nanning, 530000, China
**Corresponding author: huangwp2001@163.com*

Abstract: *To address the core issues in traditional entrepreneurship education such as the disconnection between theory and practice, lagging decision-making feedback, and high trial-and-error costs, this study introduces the concept of "digital twin" to construct and practice a brand-new entrepreneurship plan training model. This model, centered on business simulation platforms such as Cesim, creates a highly realistic virtual market "twin" for interdisciplinary student entrepreneurial teams. In this environment, students have to go through the entire process of team formation, business model canvas design, multiple rounds of simulated decision-making, virtual financing roadshows, and data-driven retrospections to dynamically respond to market competition. This study elaborates on the "three levels and five stages" implementation framework of the model and uses the practice of the College of Innovation and Entrepreneurship of Guangxi University of Finance and Economics as an example for evaluation through methods such as comparative analysis, project outcome tracking and in-depth interviews. The results show that the model significantly enhances students' market insight, strategic decision-making ability, financial analysis ability and teamwork spirit, effectively realizes the teaching transformation from "talking on paper" to "training on the battlefield", and provides an effective path for deepening industry-education integration and improving the quality of innovation and entrepreneurship education.*

Key words: *Business Plan training; Digital twin; Business simulation; Interdisciplinary integration*

1. Introduction

Innovation and entrepreneurship education is the core engine for promoting the national innovation-driven development strategy. As the main battlefield for talent cultivation, the effectiveness of entrepreneurship education in colleges and universities is of vital importance. However, the traditional training model, which is dominated by "writing a business plan + roadshow presentation", has inherent limitations, mainly that the business plan is prone to be detached from the constraints of the real market, the decision-making consequences cannot be immediately fed back, and students have difficulty perceiving the complexity and uncertainty of the entrepreneurial process, resulting in learning remaining at the level of "talking on paper".

"Digital twin," as an advanced concept from the industrial field, refers to the creation of a virtual mapping of a physical entity through digital means to achieve simulation, analysis and control. When applied to entrepreneurship education, it creates a virtual competitive environment for students that is highly synchronized and dynamically interactive with the real business world. Business simulation software such as Cesim and Business Strategy Game, after decades of development, have built-in algorithm engines that can well simulate market mechanisms, business operations and competitive dynamics, providing mature technical support for creating a "digital twin" environment for entrepreneurship.

Although business simulation has been widely used, most teaching practices only view it as an isolated game or competition and fail to integrate it systematically and deeply into the entire entrepreneurship course, especially lacking organic connection with key entrepreneurship links such as cross-disciplinary team building, business model innovation, and financing roadshows. Based on this,

this study aims to systematically reconstruct the entrepreneurship plan training course from the perspective of "digital twin", construct a new teaching model that runs through the entire process and is interlinked, and verify its effectiveness based on the practical platform of Guangxi University of Finance and Economics, with the expectation of providing empirical evidence for the paradigm innovation of entrepreneurship education.

2. Construction of the "Three Levels and five stages" Framework of the "Digital Twin" Entrepreneurship Training Model

This model is guided by the "value co-creation" theory, emphasizing that schools (teachers and students) and enterprises (simulated environments) jointly create learning value in the virtual space. Its core framework is supported by a "three-tier" structure to support a "five-step" process.

2.1 The "three-tier" structure

2.1.1 The base theory layer is the cornerstone of virtual decision-making

Before entering the simulation, systematically teach students core knowledge such as lean startup, business model canvas, financial management, marketing, and strategic management through modular teaching to ensure that students have the basic theoretical tools needed to make decisions.

2.1.2 Simulate the decision-making level as the core of the model's operation

Using the "digital twin" marketplace built on platforms such as Cesim, students form virtual companies in interdisciplinary teams of 4-6 people, taking on different management roles. In this environment, all theoretical knowledge will be put to the test in the virtual market.

2.1.3 The layer of review and reflection is the guarantee of the elevation of learning outcomes

The massive amounts of data generated from simulated decisions (such as financial statements, market share, stock prices, etc.) are not only the basis for competition rankings, but also valuable resources for in-depth review and extracting lessons. Guide students to identify problems from the data, analyze causes, iterate strategies, and complete the transformation from experience to ability.

2.2 The "five-step" process

2.2.1 Stage One: Team Building and Canvas Design

Break down professional barriers and form interdisciplinary teams with backgrounds in management, technology, marketing, finance, etc. Each team uses the business model canvas tool to jointly conceive and determine the core business and value proposition of their virtual company.

2.2.2 Phase 2: Multiple rounds of simulated confrontations

The team conducts simulated operations on the platform for 8 to 12 consecutive quarters. Each period requires a comprehensive decision on dozens of variables such as product development, pricing, production, marketing, and financing. The platform generates current results based on decisions made by all teams and built-in market models, and initiates decisions for the next period. This process is full of dynamic games and uncertainties.

2.2.3 Phase 3: Virtual Financing Roadshow

In the middle of the simulation, introduce a "virtual board" consisting of on-campus mentors, corporate executives, and investors. Teams are required to prepare and conduct financing roadshows based on their previous business performance and future strategies to secure "virtual investment". This move greatly enhances the reality and challenge of the training.

2.2.4 Phase Four: Data-driven Review

After the simulation, each team is required to write a detailed business analysis report. The report should be based on all the data exported from the platform and provide an in-depth analysis of the company's gains and losses, the strengths and weaknesses of competitors' strategies, and the evolution of the market.

2.2.5 Phase 5: Iteration and Optimization of the business plan

Ultimately, the team needs to incorporate all the results, data, and reflections from the simulation into a complete, executable business plan. This plan is more persuasive and profound because it has been initially verified in the "market".

3. Teaching Practice Case: Cesim Entrepreneurship Simulation in Guangxi University of Finance and Economics

A total of 72 students from six colleges participated in the teaching practice of this model in the "Entrepreneurship Plan Training" in the spring semester of 2025, forming 12 interdisciplinary teams.

3.1 Implementation process

The course positioning of "Digital Twin" was made clear at the beginning of the course. After completing the theoretical modules, the 12 teams entered the Cesim startup simulation platform. The simulated industry was set as "Smart wearable devices", and the teams competed under the same initial conditions. Typical market dynamics emerged in the process: some teams adopted a technology-leading strategy and continued to invest in research and development; Some adopted a cost leadership strategy, focusing on optimizing the supply chain; Some teams were on the verge of bankruptcy in the early stages due to cash flow disruption caused by overly aggressive advertising spending.

During the mid-stage financing roadshow, the Ruixing Technology team, with its clear market positioning and sound financial planning, managed to secure the highest amount of investment from the "virtual board", laying the foundation for subsequent expansion. The Jiguang Smart team, on the other hand, faced sharp questioning from the judges during the roadshow due to its wavering strategy.

3.2 Results Analysis

After the course ends, evaluate the teaching effectiveness in various ways:

3.2.1 Comparison of plan quality

Compared with previous years, this year's business plans have significantly more solid data support in the financial forecast section, more comprehensive considerations in the risk analysis section, and significantly improved overall logic and feasibility.

3.2.2 Self-assessment of ability

The questionnaire shows that more than 95 percent of students believe they have "significantly improved" or "greatly improved" their understanding of "the overall operation of the company", "the connection between financial data and business decisions", and "the ability to make decisions in uncertainty".

3.2.3 Interdisciplinary collaboration

In the interview, one computer science student said, "Previously I only focused on technical implementation. This simulation made me realize that even the best technology needs to match market demand and a reasonable business model. The collaboration with my business school classmates broadened my horizons."

3.2.4 Spillover of results

This semester, three course teams successfully made it to the provincial "Internet Plus" college students' innovation and entrepreneurship competition and won awards with their projects refined in the simulation.

4. Conclusions and Prospects

This study successfully applied the "digital twin" concept to entrepreneurship plan training and constructed a "three-level five-stage" teaching model. By creating a high-fidelity, low-cost, and highly feedback virtual business environment, this model effectively integrates theoretical teaching, practical operation, and reflective elevation, greatly enhancing the effectiveness and challenge of entrepreneurship education.

Practice shows that the success of this model depends on several key factors: First, choosing a simulation platform that is highly consistent with the course objectives; Second, teachers need to have the advanced coaching ability to guide review and inspire reflection; Third, it is necessary to establish a scientific assessment mechanism that combines process and finality.

The future directions of exploration include: First, collaborating with local enterprises, embedding real cases or data of enterprises into simulation systems to create customized training projects of "one enterprise, one case"; Second, explore the introduction of artificial intelligence technology into the simulation platform to generate smarter, more unpredictable virtual competitors to further enhance the complexity and authenticity of the simulation; Third, build cross-school alliances to organize virtual business competition among schools and broaden students' horizons. This study provides practical solutions for deepening industry-education integration and innovating talent cultivation models in the context of the new era.

Fund Project

This paper is the research result of "Research on the Construction and Management of Virtual Teaching and Research Section of Innovation and Entrepreneurship under the Background of New Liberal Arts Construction" (No. 2023ZJY596), the special project of Guangxi Education Informatization Teaching Application Practice Community in 2023 under the 14th Five-Year Plan of Guangxi Education Science.

References

[1] Ministry of Education. Opinions on Accelerating the Construction of High-level Undergraduate Education and Comprehensively Enhancing the Ability to Cultivate Talents. 2018.
[2] Qi Yajun, Tian Wenjing, Qin Mingwei, et al. Research on the "Project + Competition" Driving Model for Cultivating College Students' Practical Innovation Ability under the SRTP Management . Science, Education and Culture Review, 2025(13).
[3] Ma Lijuan. Research on the Integration Model of Industrial Parks and Universities in Education and Industry . Science, Education and Culture Review, 2024(21): 11-14.
[4] Xu Xiaoting. Exploration of the Studio Teaching Model Integrating Guangxi Intangible Cultural Heritage into College Students' Innovation and Entrepreneurship Projects . Art Education, 2024(5): 92-95.
[5] Han Fangkai, Zhang Dongjing, Wang Haichao, et al. Exploration and Practice of the Path for Young Doctoral Teachers in Local Universities to Carry out "Integration of Science and Education" . Journal of Suzhou University, 2025, 40(3): 81-84.
[6] Yang Chunhui. Research on the Strategies for Cultivating and Enhancing College Students' Innovation and Entrepreneurship Ability Based on the ERP Training Platform . Journal of Jilin Institute of Chemical Technology, 2023, 40(10): 46-49.