

Research and Exploration on the Construction of an Excellent Case Library for College Students' Innovation and Entrepreneurship Practice: A Case Study of Xiamen University of Technology

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Abstract: Innovation and entrepreneurship (I&E) education in higher education institutions (HEIs) currently faces a widespread dilemma of emphasizing theory over practice. Students lack accessible pathways to understand their university's I&E achievements and have insufficient practical references close to their own context. This study takes the "Excellent Case Library for College Students' Innovation and Entrepreneurship Practice" project at Xiamen University of Technology as its research object. Grounded in Social Learning Theory and Experiential Learning Cycle Theory, this paper systematically presents the research design, implementation pathway, and phased outcomes of the case library construction. The study constructs a five-stage closed-loop construction model encompassing data collection, case selection, teaching material development, pedagogical application, and results presentation. A multi-dimensional selection standard system covering disciplinary representation, stage diversity, educational value, role-model effect, and narrative integrity is established. A "STAR-L" case text structure and three teaching application models, embedded application, case seminar, and project-based extension, are developed. The findings indicate that using alumni entrepreneurship cases as the core carrier can effectively bridge the gap between theoretical instruction and practical cultivation, enhancing students' entrepreneurial self-efficacy. This study provides a replicable practical sample for application-oriented undergraduate institutions seeking to deepen innovation and entrepreneurship education reform.

Keywords: Innovation and Entrepreneurship Education; Case Library Construction; Alumni Cases; Social Learning Theory; Experiential Learning Cycle; Teaching Reform

1. Introduction

Innovation and entrepreneurship (I&E) education is a critical component of talent cultivation in higher education and an important support for serving the national innovation-driven development strategy. The General Office of the State Council of China issued the Implementation Opinions on Deepening the Reform of Innovation and Entrepreneurship Education in Higher Education Institutions (Guobanfa [2015] No. 36), which explicitly calls for HEIs to explore new mechanisms for cultivating innovation and entrepreneurship talents through cross-department, cross-disciplinary, and cross-major integration [1]. However, a significant gap persists between policy requirements and teaching practice.

Current general I&E courses such as "Fundamentals of Entrepreneurship" in Chinese HEIs commonly face the dilemma of emphasizing theory over practice, teachers deliver knowledge about entrepreneurship, yet students struggle to transform it into understanding of entrepreneurship [2]. Entrepreneurial knowledge possesses significant tacit characteristics, embedded in specific contexts, personal networks, and trial-and-error processes, making it difficult to transmit fully through abstract concepts and theoretical models. Meanwhile, students' access to their university's I&E achievements remains highly limited, with outstanding entrepreneurial alumni experiences typically presented in scattered lecture formats with restricted audiences and lacking systematic pedagogical transformation [3].

Case-based teaching is widely regarded as an important pathway to bridge the theory-practice gap. However, questions remain unresolved: where do cases originate, and how can they genuinely serve teaching rather than devolve into mere storytelling? Cui [4] notes that case teaching can bring real problems of entrepreneurial competencies and societal expectations into the classroom, yet systematic construction of school-based entrepreneurial case libraries and their effective integration into teaching

systems still lack mature operational frameworks and empirical research. Existing studies on case library construction tend to focus on principle-level discussions or partial practices [5-6], with insufficient systematic exploration centering on excellent entrepreneurial alumni cases throughout the entire I&E talent cultivation process.

Against this backdrop, Xiamen University of Technology (XMUT), relying on its Academic Affairs Office (Innovation and Entrepreneurship Park), launched the "Excellent Case Library for College Students' Innovation and Entrepreneurship Practice" research and exploration project. Based on this project's construction practice, this study systematically presents the entire process from research design to implementation, integrating Social Learning Theory and Experiential Learning Cycle Theory into case library design and teaching transformation, aiming to provide theoretical reference and practical guidance for peer institutions.

2. Theoretical Foundation and Literature Review

2.1 Social Learning Theory and Entrepreneurial Self-Efficacy

The core theoretical foundation of this project is rooted in Social Learning Theory proposed by American psychologist Albert Bandura. Bandura revealed that most human learning occurs through observation, imitation, and other forms of social learning, demonstrating the significant role of role-model demonstration in moral formation and socialization processes [7]. In 1977, Bandura introduced the concept of self-efficacy, defined as an individual's confidence in completing a specific task, positing that it significantly influences action preparation, effort intensity, perseverance will, and emotional state when facing difficulties [8].

In the field of entrepreneurship education, entrepreneurial self-efficacy refers to an individual's belief in their ability to successfully accomplish entrepreneurship-related tasks. Research shows that individuals with high self-efficacy view challenging activities as surmountable and are more likely to set and strive toward career goals; exposure to entrepreneurs significantly increases students' intentions to become entrepreneurs and improves their entrepreneurial self-efficacy beliefs [9]. A key insight from Social Learning Theory for case library construction is that vicarious experience, one of the four major sources of self-efficacy, can be triggered by observing similar others (such as alumni) succeeding through sustained effort. This suggests that learning from entrepreneurial alumni is more effective for enhancing current students' entrepreneurial self-efficacy than learning from distant entrepreneurs, because alumni share higher similarity and referentiality with current students [10].

2.2 Experiential Learning Cycle Theory and Case Teaching

From the perspective of learning theory, alumni case teaching aligns with David Kolb's Experiential Learning Cycle model. This model posits that effective learning comprises four stages: Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation [11]. Traditional lectures cover the latter two stages but fail to provide materials for the first two. Alumni cases precisely fill this gap: the vivid experiences of entrepreneurial alumni constitute concrete experience, classroom discussions guide students through reflective observation, teacher facilitation elevates understanding to abstract conceptualization, and students ultimately complete active experimentation through simulated entrepreneurship or competition practice.

2.3 Literature Review

In recent years, Chinese HEIs have actively explored I&E case library construction. Wuchang Institute of Technology formulated a case library construction plan proposing principles of resource co-construction and sharing and progressed according to a five-year timeline [5]. Sanya University organized faculty to compile case libraries suited to their students' levels and disciplinary characteristics [6]. Regarding alumni resources, Yuan [7] highlighted the important role of role-model demonstration in moral formation; Kang [12] regarded alumni resources as the most fertile talent resource for universities. However, existing research on alumni resource utilization remains at superficial levels such as lectures and experience sharing, lacking systematic transformation of alumni entrepreneurial experiences into teaching cases [3].

This study addresses this gap by taking XMUT as a case, systematically presenting the complete construction process from data collection to results presentation, and constructing a school-based

entrepreneurial case library model driven by alumni cases, supported by theoretical frameworks, and grounded in teaching closed-loops.

3. Research Design

3.1 Research Objectives

The core objective of this project is to enrich the university's I&E education curriculum system and practical teaching through systematic construction of an excellent entrepreneurial case library, helping current students gain deeper understanding of the university's I&E development history and educational characteristics. Specific objectives include: (1) systematically presenting the research design and implementation process through academic papers; (2) designing a case-analysis course teaching model based on the case library; (3) developing digital human case explanations and digital teaching materials combined with AI technology; and (4) presenting case results through physical space displays in the entrepreneurship park.

3.2 Research Methods

This project employs three integrated research methods: (1) Literature Review: systematically reviewing literature on case library construction in application-oriented undergraduate institutions to identify referable experiences and challenges. (2) Questionnaire Survey and Interview: investigating the actual needs and expectations of students, teachers, and educational administrators regarding I&E teaching through questionnaires and semi-structured interviews with award-winning project instructors, students, and alumni entrepreneurs. (3) Data Analysis and Case Study: utilizing AI technology for case data statistics, classification coding, and knowledge graph construction; employing the Critical Incident Technique to guide alumni in recalling key nodes in their entrepreneurial journey, transforming narrative interviews into structured analytical materials.

3.3 Technical Route

The technical route is summarized as a Five-Stage Closed-Loop Construction Model. Stage 1 (Data Collection, Sep-Dec 2024): comprehensively sorting award-winning projects from the China International College Students' Innovation Competition and alumni enterprise data through questionnaires, field visits, and in-depth interviews. Stage 2 (Case Selection, Jan-Jun 2025): selecting representative cases covering different disciplines and entrepreneurial stages based on multi-dimensional criteria. Stage 3 (Material Development, Jun-Sep 2025): completing case compilation, paper publication, and digital course material development. Stage 4 (Teaching Application): integrating case library results into courses through embedded application, case seminars, and project-based extension. Stage 5 (Results Presentation): displaying results through physical space, online platforms, and promotional materials with continuous update mechanisms.

4. Implementation Process and Results

4.1 Data Collection and Analysis

XMUT's Innovation and Entrepreneurship Park, established in 2008, has participated in the China International College Students' Innovation Competition (formerly Internet+ Competition) since 2015, accumulating numerous high-quality projects across various disciplines over ten sessions. Data collection centered on these decade-long award-winning projects while also encompassing technology enterprises, cultural creative enterprises, and social enterprises founded by alumni. Four channels were utilized: park management system data export, alumni visit surveys, in-depth interviews, and questionnaire surveys.

The resulting foundational database exhibits three characteristics: (1) broad disciplinary coverage spanning mechanical engineering, electronic information, computer science, materials science, architecture, art design, and economic management; (2) diverse entrepreneurial stages from startup to growth to maturity, providing rich analytical materials; and (3) high technological content involving intelligent manufacturing, new energy, new materials, artificial intelligence, and IoT, aligning with the university's mission of education-oriented, industry-serving.

4.2 Case Selection Criteria

The project team established a Five-in-One selection standard system: (1) Disciplinary Representation: ensuring coverage of the university's major fields so students from different backgrounds can find relevant references. (2) Stage Diversity: deliberately including cases from different entrepreneurial stages to avoid a single entrepreneurship equals success narrative, with particular attention to setback-reflection cases whose educational value often proves more profound. (3) Educational Value: each selected case must contain extractable teaching points, at least 3-5 key decision nodes, clear theoretical knowledge mappings, and discussion questions. (4) Role-Model Effect: from the perspective of Social Learning Theory, similarity between role models and observers is a key factor influencing observational learning effectiveness. The team prioritizes alumni closest to current students, those who graduated from similar majors, faced similar career choices, and started entrepreneurship on the university's I&E platform, whose stories most effectively trigger the if they can do it, so can I vicarious experience effect [10]. (5) Narrative Integrity: cases must possess clear timelines, complete decision processes, verifiable result feedback, and in-depth reflection summaries.

The selection process comprises three steps: preliminary screening by the park management team; case review meetings with I&E education experts, entrepreneurship instructors, and alumni representatives; and supplementary interviews and material refinement for shortlisted cases.

4.3 Case Text Development

Based on Experiential Learning Cycle Theory, each case text adopts a STAR-L structure: Situation (entrepreneurial background and major, establishing relevance with current students); Task (core challenges faced); Action (key actions and decision logic); Result (short-term and long-term outcomes, including failures and setbacks); and Learning (extracted entrepreneurial knowledge points mapped to course theoretical knowledge, with discussion questions and reflection guidance). In digital development, the team created AI digital-human case explanation videos, constructed case knowledge graphs for structured annotation and intelligent retrieval, and developed integrated digital teaching materials combining case texts, video explanations, knowledge graphs, and discussion question banks.

4.4 Teaching Application Models

The case library is integrated into Fundamentals of Entrepreneurship and related courses through three models: (1) Embedded Application: alumni cases serve as supporting materials for specific knowledge modules, such as introducing alumni experiences in market-gap discovery when teaching entrepreneurial opportunity identification. This anchors theoretical knowledge to concrete situations. (2) Case Seminar: in-depth analysis of typical alumni cases with group discussions and role-playing. Students assume different roles (founder, investor, partner) to experience decision-making processes, leveraging reflective observation and active experimentation stages of the learning cycle. (3) Project-Based Extension: alumni cases serve as benchmarks for students' business plans or competition projects, extending case learning from watching others do to doing it themselves, completing the full experiential learning cycle.

4.5 Results Presentation

The case library serves as important material for presenting the entrepreneurship park's I&E achievements through multidimensional forms including the Alumni Entrepreneurship Case Wall physical display, the Case Library Digital Exhibition Hall online platform, and the publication of the Xiamen University of Technology Excellent Entrepreneurial Alumni Case Collection. These presentations not only serve as teaching resources but also become windows for external communication of the university's I&E education.

5. Discussion

5.1 Innovative Value and Theoretical Contribution

The XMUT case library achieves pedagogical innovation in four dimensions: Path Innovation extends case library construction from single courses to the entire I&E talent cultivation process, enabling multi-scenario reuse in course teaching, freshman education, and competition guidance. Content Innovation

allows freshmen to access referable role models from enrollment, establishing cognitive pathways linking major study, innovation practice, and entrepreneurial development. Application Innovation enables continuous identification of promising student projects and entrepreneurial mentors to support future competition success. Presentation Innovation delivers more narrative and impactful displays than traditional exhibition boards or press releases.

The theoretical contributions are threefold: first, integrating Social Learning Theory and Experiential Learning Cycle Theory into entrepreneurial case library construction, building a role-model demonstration, experiential learning, teaching transformation trinity analytical framework. Second, proposing the concept of homogeneous role models, emphasizing that professional, instructor, and environmental homology between alumni and current students is the key condition for vicarious experience to take effect [10], providing theoretical basis for selecting case protagonists. Third, the five-stage closed-loop model elevates case library construction from mere resource accumulation to systematic pedagogical engineering.

5.2 Practical Boundaries and Future Directions

Several issues require careful consideration. First, the typicality controversy: can a few successful experiences represent the full picture of entrepreneurship? The project deliberately includes setback-reflection cases, explicitly noting that cases provide analytical material rather than replicable templates. The essence of I&E education is cultivating thinkers capable of facing uncertainty, making decisions with incomplete information, finding paths with limited resources, and maintaining resilience when encountering setbacks. Second, privacy and boundary issues: the project adopts a reviewable, modifiable, withdrawable principle, with case drafts subject to alumni review before pedagogical use. Third, case-theory disconnection risk: each case text explicitly marks corresponding theoretical knowledge points, and discussion questions must target theoretical concepts rather than remaining at the plot level.

Limitations include: as a case study, generalizability requires further verification; teaching effects lack large-scale empirical validation; and digital development remains at an early stage. Future directions include expanding case coverage to social entrepreneurship and cultural creative entrepreneurship; deepening digital applications such as AI digital-human explanations and virtual simulations; constructing teaching effect evaluation systems with quantitative data validating impacts on entrepreneurial self-efficacy and entrepreneurial intention; and promoting inter-institutional case resource sharing to form regional I&E case library alliances.

6. Conclusion

The construction of an excellent entrepreneurial case library extends beyond accumulating teaching resources, it addresses the profound proposition of I&E education: how to transmit not only knowledge about entrepreneurship but also understanding of entrepreneurship in the classroom. This study, taking XMUT as its case, presents a five-stage closed-loop construction model, multi-dimensional selection standards, and a STAR-L case structure based on Social Learning Theory and Experiential Learning Cycle Theory, designing three teaching application models. The findings demonstrate that using alumni entrepreneurial cases as the core carrier, through systematic collection, selection, compilation, and teaching transformation, can effectively bridge the theory-practice gap and enhance students' entrepreneurial self-efficacy. Outstanding entrepreneurial alumni, as homogeneous role models for current students, transform entrepreneurship from a distant legend into a possibility that can happen to me. The ultimate aim of case teaching is not to have students memorize an alumnus's entrepreneurial story, but to enable them to think like entrepreneurs when facing uncertainty, making decisions with incomplete information, finding paths with limited resources, and maintaining resilience when encountering setbacks. This is both the fundamental purpose of I&E education and the enduring value of case library construction.

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References

- [1] General Office of the State Council. *Implementation Opinions on Deepening the Reform of Innovation and Entrepreneurship Education in Higher Education Institutions* [Z]. Guobanfa [2015] No. 36.
- [2] Kuang Z M. *Problems and Countermeasures of Case Teaching in Innovation and Entrepreneurship Education* [J]. *Innovation and Entrepreneurship Education*, 2018, 9(3): 45-48.
- [3] Sun W W. *Teaching Practice Research on Alumni Cases in College Professional Quality Improvement Courses* [J]. *Journal of Tianjin Vocational Institutes*, 2019, 21(9): 78-82.
- [4] Cui Z. *Research on the Application of Case Teaching in Innovation and Entrepreneurship Education* [J]. *Education and Vocation*, 2013(27): 156-157.
- [5] Innovation and Entrepreneurship College, Wuchang Institute of Technology. *Implementation Plan for Case Library Construction of the Theory Department* [EB/OL]. (2023-05-19). <https://cxcyxy.wut.edu.cn/info/1721/2001.htm>.
- [6] Sanya University. *Sanya University 2020-2021 Undergraduate Teaching Quality Report* [R]. 2021.
- [7] Yuan W B. *Research on Role Model Education in Contemporary China* [D]. Shijiazhuang: Hebei Normal University, 2010.
- [8] Bandura A. *Self-efficacy: The Exercise of Control* [M]. New York: W.H. Freeman, 1997.
- [9] Nwosu H E. *Applying Social Cognitive Theory to Placement Learning in Business Firms and Students' Entrepreneurial Intentions* [J]. *The International Journal of Management Education*, 2022, 20(2): 100640.
- [10] East China University of Science and Technology Press. *Science and Technology Entrepreneurship Case Collection* [M]. Shanghai: ECUST Press, 2020.
- [11] Kolb D A. *Experiential Learning: Experience as the Source of Learning and Development* [M]. Englewood Cliffs, NJ: Prentice-Hall, 1984.
- [12] Kang X R. *Alumni Resources and Talent Cultivation in Higher Education Institutions* [J]. *Chinese Adult Education*, 2007(18): 56-57.