# Developing College Students' Entrepreneurial Competences: Designing Project-Based Learning Entrepreneurship Foundational Course in Chinese Universities

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Received: June 12, 2024 Accepted: July 17, 2024 Online Published: August 7, 2024

doi:10.5430/jct.v13n4p159 URL: https://doi.org/10.5430/jct.v13n4p159

**Abstract**

This study introduces the design process of a Project-Based Learning (PBL) entrepreneurship foundational course for Chinese universities. To address deficiencies in the current entrepreneurship foundational courses in Chinese universities and to enhance the overall entrepreneurial competence of college students, project-based learning has integrated into the entrepreneurship foundation course. Based on the project-based learning framework proposed by Han and Bhattacharya (2001), a project-based learning entrepreneurship foundational course has been developed for Chinese universities by utilising expert panels. Once the course design was completed, a semester-long project-based learning entrepreneurship foundational course was implemented. We measured the effectiveness of the course through student feedback. The course objectives were to develop student opportunity competence, business management competence, and interpersonal competence in entrepreneurship. This paper presents the course outline, teaching unit design, and teaching activity design. In addition, this study explored the relevant factors that should be considered in the development of any project-based learning entrepreneurship foundational course. This study developed the entrepreneurial competence of college students through the design of a project-based learning entrepreneurship foundational course and implemented a one-semester course in a university in China. The results of this study can serve as a guide for universities who wish to implement project-based learning entrepreneurship foundational courses, which can help improve the entrepreneurial competence of college students.

**Keywords:** entrepreneurship foundational course, project-based learning, Chinese university, course design

## 1. Introduction

The cultivation of entrepreneurial competencies amongst college students has become a focal point in entrepreneurship education research, in recent years. Exploring effective teaching methods for enhancing the entrepreneurial competence of college students through an entrepreneurship foundational course is a current requirement for China's innovation-driven entrepreneurship education. Zhu et al. (2023) argue that the concept of innovation and entrepreneurship education in Chinese universities lags significantly behind the national innovation-driven development ideology. Entrepreneurship foundational courses, which is a required course in university innovation and entrepreneurship education, are facing issues such as low student engagement, outdated concepts, severe homogenisation, unscientific course content design, unreasonable course objectives, and a failure to cultivate students' entrepreneurial abilities (Chen, 2023; Fu, 2021; Huang, 2022). As the entrepreneurial landscape evolves, traditional teaching models employed in the current entrepreneurship foundational course are insufficient to meet the new demands placed on college students' entrepreneurial abilities (Fu, 2022). Therefore, amidst China's economic transition to an innovation-driven development model, researching and reforming entrepreneurship foundational course teaching can allow for the exploration of potential pathways to enhance college students' entrepreneurial abilities through the curriculum and by the promotion of reforms in university entrepreneurship education to cultivate the talents needed for China's socio-economic development.

Project-Based Learning (PBL) is a student-centered teaching method that enhances students' learning levels

(Žerovnik & Nančovska, 2021). To improve the quality of school education, many countries have adopted learner-centred teaching methods in the reform of educational approaches (Mitchell & Buntic 2023). Based on this project-based learning approach, individual and collective learning goals are initially defined, while challenging project tasks are completed under the guidance of teachers. The project content typically revolves around solving real-world problems or creating real-world products (Capraro et al., 2013; DeFilippi, 2001; Sahin, 2012). According to Williams and Linn (2003), students engaged in project-based learning (PBL) outperform students receiving traditional classroom instruction.

Project-based learning generates meaningful learning experiences by creating projects that challenge students, thereby enhancing their interest (Wurdinger et al., 2007). This approach not only immerses students in deeper learning but also broadens their perspectives, helping them connect their learning experiences to the real world (D'Orio, 2021). Thus, project-based learning enhances both the learners' interest and engagement in the curriculum, while simultaneously developing their problem-solving abilities in connection with the real world. Movahedzadeh (2012) found that using project-based learning in a molecular biology course improved student confidence, laboratory skills, interest, and satisfaction. Higher education aims to produce highly competitive graduates with diverse business skills, and the implementation of project-based learning as a teaching reform provides students with entrepreneurial knowledge that can enhance their innovation and creativity (Sun & Kim, 2022). Organ et al. (2022) implemented project-based learning in the entrepreneurship course to develop entrepreneurial abilities in software development majors, with the subsequent results indicating that the effective use of project-based learning clearly contributed to the cultivation of students' entrepreneurial abilities. Experimental studies in entrepreneurship and business courses have since demonstrated that project-based learning can indeed develop college students' entrepreneurial competence.

In essence, project-based learning, as a method that is autonomous, collaborative, and inquiry-based, shifts the leadership of an entrepreneurship foundational course to college students, thus aligning the needs of entrepreneurship foundational course teaching and benefiting the development of college students' entrepreneurial abilities (Hu & Cheng, 2003). Establishing an intrinsic connection between project-based learning and the development of college students' entrepreneurial abilities not only enriches the theoretical framework of entrepreneurship foundational course teaching but also provides a real-world basis for it (Yu, 2016). Carnawi et al. (2017) also state that project-based learning employs projects as learning tools to master concepts, creativity, leadership, knowledge, and skills. The advantages of project-based learning are directly linked to developing 21st-century learning skills, such as problem-solving, critical thinking, decision-making, teamwork, and communication (Sumarni et al., 2016). Morris et al. (2013) research indicates that problem-solving, critical thinking, decision-making, teamwork, and communication are the key abilities required for entrepreneurial competence.

This study aimed to construct a project-based learning foundational entrepreneurship course designed to theoretically develop college students' entrepreneurial competence. Expert panels were used to review the course's validity. The development procedure began with establishing course objectives. Consequently, project-based learning was designed as the pedagogy, with corresponding activities and assessments for each unit. The details are illustrated below.

## 2. Expert Panels

This study used expert panels to examine the validity of the developed course. Five experts, including scholars, professors, and entrepreneurs with over 10 years of experience in entrepreneurial practice, research, theory, and instruction, and holding a master's or PhD degree, were invited to review the course syllabus. The review process consisted of two rounds. The first phase focused on examining the course objectives, while the second phase evaluated the course syllabus. Each phase was conducted in two steps: first, the course was revised based on the panel's comments and suggestions; second, the revised version was sent back to the experts for confirmation, finalizing the course syllabus.

## 3. Course Objectives

Undoubtedly, entrepreneurial competence is a primary source of entrepreneurial success (Boldureanu et al., 2020). Consequently, providing students with the knowledge and skills required to become successful entrepreneurs has become a crucial factor in creating and managing influential entrepreneurship education programs (Duval-Couetil, 2013). Morris et al. (2013) suggest that entrepreneurship education can be employed as an effective tool to enhance core entrepreneurial abilities and further emphasise that successful entrepreneurship requires various skills. Due to

the heterogeneity in defining the field of entrepreneurship education and the accompanying framework of abilities, literature and practice, there is a lack of clarity regarding what academic entrepreneurship courses should teach, and which abilities need to be cultivated (Tittel & Terzidis, 2020). Based on a review of entrepreneurial competence definitions and model structures, this research combines three core entrepreneurial competences for college students taking part in an entrepreneurship foundational course: opportunity competence, business management competence, and interpersonal competence (Man et al., 2002; Silveyra et al., 2021).

**Table 1.** Information Sheet on the Background of the Experts' Study

| Experts | Educational Background | Title/Position | Experience |
|---|---|---|---|
| A | Engaged in research and teaching innovation and entrepreneurship education, dual-degree Doctor of Philosophy in Management and Educational Administration | Associate Professor/Deputy Director, University Research Office | 12 years |
| B | Doctor of Philosophy in Educational Management, Research and Teaching in Instructional Design and Educational Management | Associate Professor/University Teaching Faculty Development Center, Teaching Quality Assessment Center | 10 years |
| C | Doctor of Philosophy in Educational Management, Research and Teaching in Innovation and Entrepreneurship Management and Curriculum Instruction for University Students | Associate Professor / Deputy Director of University Academic Affairs Office | 9 years |
| D | Doctor of Philosophy in Management, Research and Teaching in Student Entrepreneurship Education and Business Administration | Associate Professor/Dean of the University College of Continuing Education | 12 years |
| E | M.Ed. in Curriculum and Instructional Theory and Entrepreneurship Education for University Students | Associate Professor/University Faculty of Educational Sciences | 10 years |

**Table 2.** Summary of Expert Review of Competency indicators for Entrepreneurship Foundational Course

| Objectives | Expert Commentary | | | CVI | Suggested for Revision |
|---|---|---|---|---|---|
| | Agree | Needs Revision | Disagree | | |
| A1 | 4 | 1 | | 1 | Proposed replacement of the word "find" with the word "develop". |
| A2 | 3 | 2 | | 1 | Suggest changing "research and analysis" to "market research and analysis". |
| A3 | 5 | 0 | | 1 | |
| B1 | 3 | 2 | | 1 | No qualitative business model Suggested change |
| B2 | 5 | 0 | | 1 | None |
| B3 | 3 | 2 | | 1 | Suggest changing "industry market" to "business model of industry market operation". |

This study explores the project-based entrepreneurship foundational course objectives based on entrepreneurship development theory literature. Experts (A, B, C, D, E) were invited to review the objectives of the entrepreneurship foundational course in China, as shown in Table 1, and make recommendations for each objective. Through the experts' review of the course objectives, the Content Validity Index (CVI) was calculated for each indicator with a range of 1 and the experts' opinions were compiled (shown in Table 2). Research suggests that the CVI for three or

more expert reviews should be .780 and above (Polit et al., 2007). Therefore, the project-based learning entrepreneurship foundation course devised by this study has good expert content validity. Finally, the objectives (A1, A2, B1, B2, C1, C2) were revised based on the recommendations of the expert review, and the revised objectives of the project-based learning entrepreneurship foundational course, which consisted of three core competencies: opportunity competency, business management competency, and relationship competency, as shown in Table 3.

**Table 3.** Entrepreneurship Foundational Course Objectives

| Primary Course Objectives | Secondary Course Objectives | Tertiary Course Objectives |
|---|---|---|
| Entrepreneurial Competence | Opportunity Competence | A1: Demonstrate the competence to identify pain points and issues in the market environment, developing entrepreneurial opportunities. |
| | | A2: Conduct comprehensive assessments of entrepreneurial opportunities through market research and analysis. |
| | | A3: Utilize entrepreneurial opportunities to create business plans. |
| | Business Management Competence | B1: Design feasible strategic plans for business model. |
| | | B2: Master business management knowledge and apply it to business plans. |
| | | B3: Familiarize with the business models operating in the entrepreneurial industry market. |
| | Interpersonal Competence | C1: Communicate with others and resolve interpersonal issues. |
| | | C2: Establish interpersonal relationship networks for entrepreneurial projects. |

Note: Data is sourced from this study.

In the process of developing core entrepreneurial competences among college students, the growth of opportunity competence is crucial as the ability to identify and seize opportunities is a key factor in entrepreneurial success (Ardichvili et al., 2003). Adequate entrepreneurship education is required to master the process of discovering, assessing, and utilising entrepreneurial opportunities, as opportunity discovery is at the core of the entrepreneurship field (Shane & Venkataraman, 2000). Business plans are a typical component of introductory entrepreneurship courses. In almost all entrepreneurship courses, a business plan is the typical end product and an excellent task and method for improving students' learning levels (Katz, 2014). Planning and implementing business models are crucial for entrepreneurs to achieve business success, and interconnected business models can be used to enhance competitive advantages and leverage innovation (Dijkman et al., 2015). Entrepreneurs are increasingly able to establish remarkable new business models by optimising value propositions through intelligent technology and improving revenue streams (Mazzei, 2018). Developing interpersonal communication skills is an important entrepreneurial ability that can effectively reduce the uncertainty of job tasks (Rogers, 1987). It is essential that students cultivate communication, collaboration, and problem-solving skills during their studies (Kreber, 2003; Young & Fry, 2008). Interpersonal competence plays a pivotal role in the development and promotion of potential entrepreneurs in higher education (Neergaard & Christensen, 2017).

Throughout this course, students achieve specific objectives by completing entrepreneurial projects:

*3.1 Objective A1*

Students can identify and analyse problems in the market environment and propose solutions. Through case analysis, they recognise the characteristics, types, and sources of entrepreneurial opportunities by mastering methods to identify entrepreneurial opportunities in the market.

*3.2 Objective A2*

Students can conduct comprehensive assessments of entrepreneurial opportunities. By utilising market research, they are able to evaluate team entrepreneurial projects using entrepreneurial opportunity assessment criteria and methods.

*3.3 Objective A3*

Students can also utilise entrepreneurial opportunities to create business plans. They assess the risks and precautions of entrepreneurial opportunities, analyse the feasibility of any entrepreneurial opportunities, and proceed with the next steps in business planning based on those entrepreneurial opportunities.

*3.4 Objective B1*

Students can design entrepreneurial business model plans. They need to be familiar with basic types of business models, mastering the thought processes and methods required for designing business models for entrepreneurial projects.

*3.5 Objective B2*

Students can master business management knowledge and apply it to business plans. Through exploring enterprise cases, they acquire adequate business management knowledge and apply it to the business plans of group entrepreneurial projects.

*3.6 Objective B3*

Students can familiarise themselves with the business models operating in the market of the entrepreneurial industry. They are able to analyse the business models and pros and cons of the industry market in which group entrepreneurial projects operate and design the most appropriate business model for group entrepreneurial projects.

*3.7 Objective C1*

Students can communicate with others and manage interpersonal issues. After creating learning groups, they will need to coordinate and resolve issues within the group during the entrepreneurial project design process, while coordinating and resolving communication issues with teachers, government officials, and businesses during project design.

*3.8 Objective C2*

Students can establish interpersonal relationship networks for entrepreneurial projects. During the design of entrepreneurial projects, they establish entrepreneurial teams and build business partnership relationships based on project requirements.

## 4. Pedagogy

This course is conducted in the form of a 16-week semester in Chinese universities, targeting all college students. The course consists of eight units of study, with one class per week lasting 80 minutes. After each weekly class, there are practical activities conducted in teams, as post-class assignments. In this study, the initial course design was completed based on project-based learning and course objectives. After the completion of the course construction, five experts shown in Table 1 with experienced backgrounds in entrepreneurship education, research and curriculum design research, were invited to review the syllabus and unit design to enable a comprehensive understanding and provide some suggestions regarding the course construction of each unit module (Agree, Needs Revision, Disagree ). The course design expert review comments are summarised in Table 4. Finally, the course design was revised and adjusted, according to the expert review comments.

The course is structured and based on the overall framework proposed by Han and Bhattacharya (2001) for project-based learning. The entrepreneurship foundational course is divided into three stages: First, Entrepreneurial Project Planning Stage: Learners, guided by the teacher, form project teams and gather industry information resources related to the entrepreneurial projects of interest. Teams apply these resources to market analysis, gaining insights and evaluating entrepreneurial opportunities. Finally, learners, under the teacher's guidance, discover entrepreneurial opportunities and select a project for course study. This stage contributes to developing students' opportunities and interpersonal competence. Second, is the Creation and Implementation Stage: Learners use business model management knowledge to develop the business model of the entrepreneurial project. By combining industry business models with team resource advantages, they construct a business model document. This stage helps cultivate students' business management competence. Third, Handling and Adjusting Entrepreneurial Projects Stage: Learners share entrepreneurial project plans with other groups. Teachers and other teams provide feedback on any potential issues regarding the project plan. Finally, the project team reflects, adjusts, and forms an entrepreneurial project plan report. This stage contributes to developing students' business management and interpersonal competences.

**Table 4.** Project-based Learning Entrepreneurship Foundational Course Design Expert Review Comments Compilation Table

| Module | Expert Commentary | | | CVI | Suggested for Revision |
|---|---|---|---|---|---|
| | Agree | Needs Revision | Disagree | | |
| Unit 1 | 4 | 1 | | 1 | Suggest adding project-based learning strategies |
| Unit 2 | 4 | 1 | | 1 | Does not reflect experiential teaching and learning process |
| Unit 3 | 4 | 1 | | 1 | Add process evaluation |
| Unit 4 | 3 | 2 | | 1 | Select teaching cases according to students' professional characteristics and add business model case studies. |
| Unit 5 | 4 | 1 | | 1 | Increase teaching strategies |
| Unit 6 | 3 | 2 | | 1 | Add case studies of different types of enterprises |
| Unit 7 | 5 | 0 | | 1 | None |
| Unit 8 | 4 | 1 | | 1 | Increase process evaluation and reduce presentation hours |

The entrepreneurship foundational course, originally comprised of 8 weeks of theory, has been extended to 16 weeks, incorporating an additional 8 weeks of student practice. Following Bell (2010), project-based learning (PBL) is considered an innovative learning method, teaching key strategies for success in the 21st century.

A. This study adopts PBL as the teaching method for the entrepreneurship foundational course, utilising PBL teaching strategies based on Iowa University research (Rethwisch et al., 2013).

B. This course employs PBL teaching strategies to formulate project tasks, encouraging active student participation in the learning process (Active-Learning).

C. Based on the direction of students' entrepreneurial projects, general rules and patterns are inferred and induced from market examples (Inductive-Learning).

D. Students learn knowledge and skills through practical experiences and market research in entrepreneurial projects (Experiential Activities).

E. Metacognition and problem-solving strategies are utilised in identifying entrepreneurial opportunities, aiding students in problem-solving and opportunity discovery (Metacognition & Problem-Solving Strategies).

F. The use of network technology strengthens interaction between teachers and students, providing timely guidance in teaching (Just-in-Time Teaching).

G. Teachers facilitate learning and understanding by offering guidance and encouraging students to actively explore problems (Guided Discovery).

H. The course integrates a case-based exploration of methods and evaluation when creating entrepreneurial projects. Emphasising cooperative team learning and project-based learning, enhances student engagement through team-based discussions (Cooperative & Team-Based Learning).

## 5. Teaching Unit Activities

Entrepreneurship Foundational Course Entrepreneurship Fundamentals is a theoretical, policy-oriented, scientific, and practical general compulsory course for all undergraduate students. The course follows the laws of education and teaching, combining theoretical lectures with case analysis, group discussions with role-playing experiences, and experiential teaching with entrepreneurial practice. It seamlessly integrates knowledge transmission, ideation clashes, and practical experiences, aiming to stimulate students' enthusiasm, proactiveness, and creativity while elevating their entrepreneurial capabilities. The course includes activities such as face-to-face interviews with entrepreneurs, formation of entrepreneurial teams, identification of entrepreneurial opportunities, business model design, and

financing roadshows. Week 1 primarily focuses on delivering lectures and engaging in discussions with students on the foundational theory of entrepreneurship. From Week 2 to Week 16, the emphasis shifts to the instruction of entrepreneurial skills. The details of each unit's activities are explained as follows, and the units' syllabus are shown in Table 5.

*5.1 Entrepreneurship Fundamentals Theory*

This activity introduces the details of creativity, innovation, and case analysis in entrepreneurship. Discussions on the relationship between creativity, innovation, and entrepreneurship; students explore innovative thinking methods through case studies; post-class interviews with entrepreneurs to enhance understanding of entrepreneurial knowledge and current market conditions.

*5.2 Entrepreneurial Team Formation*

This activity provides guidance for students to explore personal strengths, understand the process and principles of team formation, and develop team management skills through experiential teaching. Students present their strengths and entrepreneurial intentions, forming teams based on common interests, and showcase team roles and introductions.

*5.3 Entrepreneurial Opportunity Identification and Evaluation*

This activity uses case studies to explore the characteristics, types, and sources of entrepreneurial opportunities. Guiding students in identifying and discussing entrepreneurial opportunities and associated risks, evaluating opportunities using criteria and methods. Teams research and discuss entrepreneurial directions, conduct surveys, analyse opportunities, and assess feasibility.

*5.4 Entrepreneurial Business Model Design*

This activity assists students in understanding the essence and elements of a business model. Students discuss and report on business models of enterprises similar to their team projects. Teachers provide feedback, supplementing case analyses, and teach the principles and methods of business model design. Teams design their business models based on project goals, target customers, products or services, value propositions, main activities, partner networks, revenue sources, and cost structures.

*5.5 Entrepreneurial Financing*

This activity helps students understand the general process of entrepreneurial financing. Analysing the required funds for the entrepreneurial project, planning the main channels for project financing, and assessing the differences between various channels. Mastering the key points of presenting financing projects. Guiding students in conducting cost structure surveys, calculating project funds, and planning financing channels.

*5.6 Enterprise Establishment*

This activity helps students understand the organisational forms of enterprises, legal and ethical issues in new enterprise creation. Designing the enterprise registration process based on principles and methods of naming and location requirements. Students visit relevant departments, inquire about the process of establishing a business, and design team project enterprise registration plans.

*5.7 Entrepreneurship Plan Writing*

This activity helps students understand the role of entrepreneurship plans. Writing entrepreneurship plans based on the basic structure, writing process, and the required information of entrepreneurship plans. Teachers guide teams in writing entrepreneurship plans, dividing tasks, and considering structure, methods, and precautions.

*5.8 Entrepreneurial Project Presentation*

This activity helps students understand the purpose of entrepreneurial project presentations. Mastering the process and methods of entrepreneurial project presentations. Teams design presentation plans suitable for their projects, and present and defend their entrepreneurial projects. Teachers and other teams evaluate entrepreneurial projects.

**Table 5.** Project-based Learning Entrepreneurship Foundational Course Syllabus Table

| Units | Teaching objectives | Learning Project | Teaching approach | Evaluation |
|---|---|---|---|---|
| Unit 1 | B3, C1 | Entrepreneurial Foundational Theory, 1 lesson | PBL | Issues |
| Unit 2 | C1, C2 | Building an entrepreneurial team, 1 lesson | PBL | Introduction of entrepreneurial team document |
| Unit 3 | A1, A2, A3 | Creation of an entrepreneurial project, 4 lessons | PBL | Introduction Learning Plan |
| Unit 4 | B1, B2, B3 | Entrepreneurship business model design, 4 lessons | PBL | Present business model design |
| Unit 5 | C1, C2 | Calculation of Entrepreneurship Project Funds, 1 lesson | PBL | Entrepreneurship project funds calculation Table |
| Unit 6 | C1, C2 | Design entrepreneurial project registration process, 1 lesson | PBL | Entrepreneurial project registration process Files |
| Unit 7 | A2, A3, B2 | Writing entrepreneurship plan, 1 lesson | PBL | Entrepreneurship plan document |
| Unit 8 | A2, A3, B3, C1 | Entrepreneurial project presentation, 3 lessons | PBL | Presentation of the entrepreneurial project |

## 6. Course Development Processes

The development of the project-based learning entrepreneurship fundamentals course involves a review conducted by five experts on teaching competence, syllabus, and unit design. Following the expert validity concept, the experts, who have extensive research experience in entrepreneurship education and curriculum design, were invited for this course review. The course development process, as shown in Figure 1, includes a literature review, an expert review, and course design adjustments, based on expert feedback.

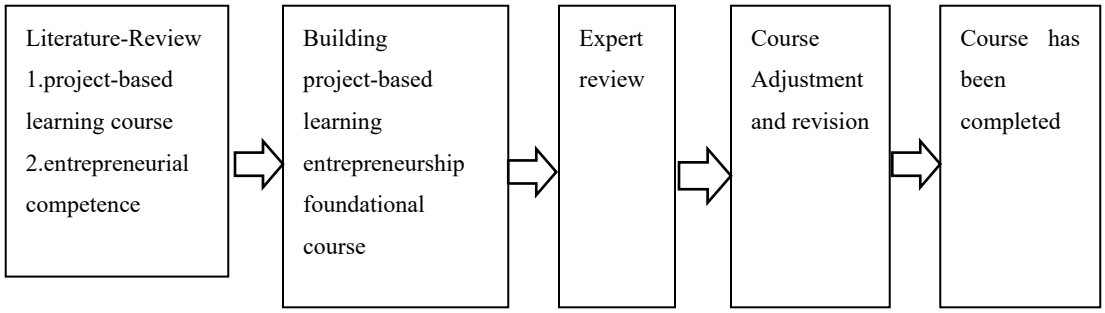


**Figure 1.** Flow Chart for the Development of the Project-Based Learning Entrepreneurship Foundational Course

## 7. Course Feedback and Discussion

In order to validate the viability of the design of the Project-Based Learning Entrepreneurship Foundation Course, after students had completed the 16-week course, the researcher selected six students for semi-structured interviews using purposive sampling for 99 course participants, four of whom were female and two male. One-on-one online interviews (30-50 minutes) were conducted on four themes: course experience, instructional activity design, delivery method, and learning activities. The interview process was audio-recorded using audio-recording equipment to record the interview data. The collected textual content (e.g. interviews) was summarised and organised according to the responses of the six students, which presented the students' feedback regarding the course.

A. A different experience. This course required a lot of thinking as in the past courses were more focused on listening to the teacher's lectures.

B. The capacity to identify and evaluate opportunities through course learning has improved, and increased knowledge, while competencies in business management have been mastered. Collaborative project learning in groups can help improve interpersonal competencies.

C. There were many opportunities to interact with both classmates and the teacher in this course, and that theoretical knowledge was unconsciously memorised.

D. There are a number of learning activities and it feels a little more difficult, compared to previous courses.

E. The course is very interesting, and the project that I have designed may have a real-world application in the future.

F. I hope the course can give me more opportunities to practice outside of school.

This study introduces the design process for a Project-Based Learning (PBL) entrepreneurship foundational course in Chinese universities. The aim is to address the shortcomings of the current higher education entrepreneurship course and enhance the entrepreneurial competences of college students. The entrepreneurship foundational course is based on students' cognition and interests in developing entrepreneurial projects. However, future course design and implementation needs to be improved, even though student feedback can improve student engagement and entrepreneurship competences. Based on student feedback, the development of a PBL entrepreneurship foundational course needs to consider the following issues:

A. The Botha (2010) study verified the impact of project-based learning on undergraduate students' entrepreneurial skills, with the results indicating that project-based learning enabled students to improve their communication skills. In this study, students identified an entrepreneurial project (learning objective), worked in small groups to develop a project plan through search and research (to obtain information), and received feedback from the teacher and classmates during the development of the project plan by presenting and sharing it, while feedback was provided on the entrepreneurial project by both the teacher and classmates, after the presentation and sharing. The programme increases the opportunities for interaction between teachers and students, and between students themselves, which helps to enhance their interpersonal competencies.

B. Project-Based Learning emphasises teaching that revolves around real-world problem scenarios. Under the guidance of teachers, students autonomously complete learning tasks, advocating for active participation and exploratory learning. The teacher's role in a PBL entrepreneurship foundational course should shift from the current position as a knowledge provider to that of a guide and facilitator of student learning, thus providing the basis for students to develop their entrepreneurial projects. Therefore, the design of each unit should focus on increasing the proportion of time students spend on independent learning, with knowledge delivery transitioning to inductive learning and guided discovery teaching strategies.

C. The instructional content of Project-Based Learning, based on students' learning interests, should be dynamically adjusted. Voglar *et al*. (2018) argue that Project-Based Learning is a learner-centred, dynamic teaching process, believing that students can acquire deeper knowledge by actively exploring the real world. Rees Lewis et al. (2019) noted that project-based learning course instructors argue for pre-course preparation to be flexible enough to help students know better quality project work by transferring project problems and setting standards. In the teaching of a Project-Based Learning entrepreneurship foundational course, teachers cannot predict the types of entrepreneurial projects students will develop in Units 1 to 3 when designing instructional units. Therefore, adjustments to the teaching plan should be made based on the projects students are developing prior to the third unit.

D. Project-Based Learning features student-centeredness, tackling challenging real-world problems, and leveraging various resources to produce multiple learning outcomes. At the same time, Project-Based Learning emphasises the role of teachers in guiding and assisting learners in completing learning tasks (Solomon, 2003). Therefore, course design should give careful consideration to pre-class preparation activities, such as preparing communication devices for information searches to help students access information or creating an environment conducive to student learning so that students can engage in authentic, inquiry-based learning.

E. Cultivating students' entrepreneurial competences is expected to improve the feasibility of their self-perception of those entrepreneurial competences, leading to higher entrepreneurial willingness (Sánchez, 2011). The teaching strategy of project-based learning, which is based on solving real problems, needs to consider more support for the development of teaching activities. If students receive support from companies that cooperate with

the university, they will have the opportunity to interact with those companies and further develop their entrepreneurial projects.

## 8. Conclusion

Project-based learning teaching strategies are considered a promising educational approach. However, in Chinese higher education entrepreneurship, there are fewer teachers who use and design Project-Based Learning courses. This study explores the connection between Project-Based Learning and an entrepreneurship foundational course. To enhance the entrepreneurial competences of college students, we describe the teaching goals, syllabus, and unit design of the Project-Based Learning entrepreneurship foundational course in Chinese universities. Although this study establishes a Project-Based Learning entrepreneurship foundational course for Chinese universities which is intended to develop students' entrepreneurial competences, it does not explore its impact. However, research by Organ et al. (2022) indicates that implementing a project-based learning entrepreneurship course contributes to the cultivation of students' entrepreneurial capabilities. Teachers continue to teach in a manner that is inconsistent with curriculum reform, which has led to a deviation between the expected and established curriculum (Al-husban & Akkari, 2021). Therefore, research suggests the implementation of systematic project-based learning training for teachers prior to teaching experiments. Teaching experiments use scales to measure entrepreneurial competences and verify the impact of project-based learning on entrepreneurial competences.

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**Acknowledgments**

We greatly appreciate the valuable contributions of Dhurakij Pundit University. We would also like to thank every team member who took the time to participate in this study.

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**Funding**

No funding.

**Competing interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**Informed consent**

Obtained.

**Ethics approval**

The Publication Ethics Committee of the Sciedu Press.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

**Provenance and peer review**

Not commissioned; externally double-blind peer reviewed.

**Data availability statement**

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

**Data sharing statement**

No additional data are available.