

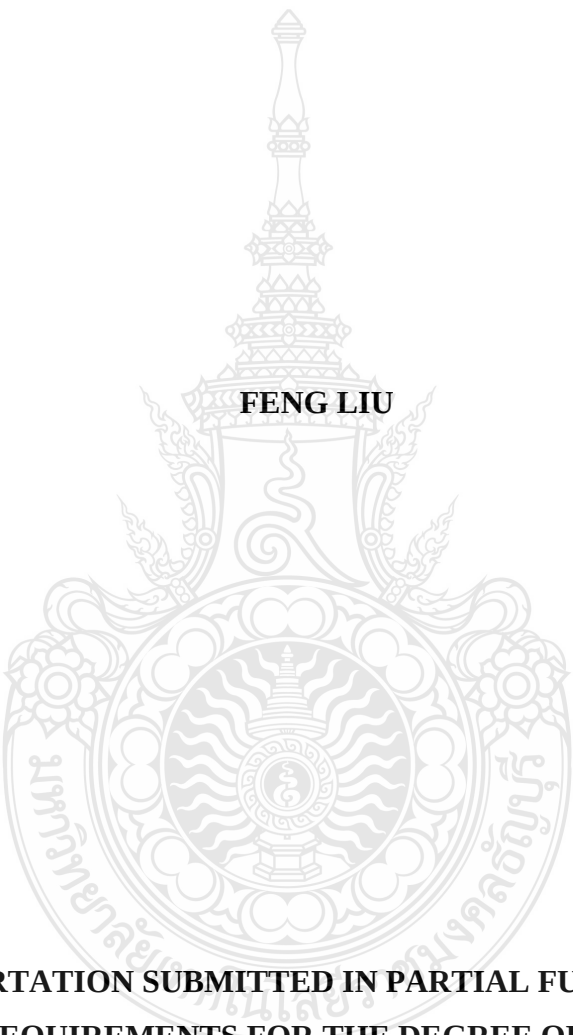
**IMPACT OF ENTREPRENEURSHIP EDUCATION ON ENTREPRENEURIAL
PERFORMANCE**

FENG LIU

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF
PHILOSOPHY PROGRAM IN BUSINESS ADMINISTRATION
FACULTY OF BUSINESS ADMINISTRATION
RAJAMANGALA UNIVERSITY OF TECHNOLOGY THANYABURI
ACADEMIC YEAR 2024
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Dissertation Title	Impact of Entrepreneurship Education on Entrepreneurial Performance
Name-Surname	Mr. Feng Liu
Program	Business Administration (Management)
Dissertation Advisor	Assistant Professor Putthiwat Singhdong, Ph.D.
Academic Year	2024

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ABSTRACT

This study, based on the Theory of Planned Behavior and Self-Efficacy Theory, investigates how entrepreneurial intention and capability mediate the relationship between entrepreneurship education and entrepreneurial performance under varying environmental dynamics. It sets three objectives: 1) to examine the relationship between entrepreneurship education and entrepreneurial performance, 2) to explore the mediating roles of entrepreneurial intention and capability in this relationship and 3) to assess the impact of these mediators under different levels of environmental dynamics.

A mixed-method approach was employed. Quantitative research involved surveys of university students from various institutions in China, with the data analyzed by SPSS for descriptive statistics, AMOS for validity testing, and PROCESS for hypothesis testing. Qualitative research included in-depth interviews with student entrepreneurs and experts, which were analyzed with NVivo and grounded theory coding techniques.

The findings demonstrate a positive relationship between entrepreneurship education and entrepreneurial performance, with both entrepreneurial intention and capability acting as significant parallel mediators. The mediation effects become stronger as environmental dynamics increase, with entrepreneurial capability having a more substantial mediating effect than entrepreneurial intention, especially under higher environmental dynamics. This suggests that as the business environment becomes more dynamic, entrepreneurship education's impact on performance through capability is more pronounced. The study concludes by highlighting potential directions for future research in enhancing entrepreneurship education.

Keywords: entrepreneurship education, entrepreneurial intention, entrepreneurial capability, environmental dynamics, entrepreneurial performance

Acknowledgements

Writing "Acknowledgement" means that my doctoral dissertation is finally coming to an end, undertaking a PhD has been one of the greatest challenges in my life. I could not have completed this dissertation without the support and kindness of many people around me. I would like to express my deepest gratitude to all those who contributed to my research and offered their support throughout my doctoral journey.

Firstly, I would like to thank my mentor, Prof. Putthiwat Singhdong, for his rigorous approach to scientific research and his precise grasp of the research problem. I am grateful to my mentor, Prof. Putthiwat Singhdong, for his rigorous approach to scientific research, his high standard of logical reasoning during the research process, and his precise grasp of scientific research problems, which often made me nervous and amazed. During the three years of my doctoral program, I not only learned how to do scientific research and acquired a certain scientific literacy, but also was infected by my teacher's charisma, which will benefit me for the rest of my life. Thanks, and gratitude to my teachers forever.

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As my doctoral studies are coming to an end, I will return to my workplace with all the knowledge I have gained from my doctoral studies and start another journey in life.

Feng Liu

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CHAPTER 1

INTRODUCTION

This chapter offers a concise overview of the entire thesis in the research project named "Impact of Entrepreneurship Education on Entrepreneurial Performance". The chapter provides an overview of the study's history, objectives, research questions and hypotheses, study structure, definitions of words, scope, limitations, and contributions.

1.1 Background and Statement of the Problems

1.1.1 Realistic Background of the Study

Amidst the current global economic changes, as the negative impact of socio-economic conditions increases and economic growth decelerates, the main topic of conversation regarding global economic development is how to generate fresh economic momentum. Both sociologists and economists concur that entrepreneurial conduct is the foremost catalyst for all economic and human endeavors (Wang, Zhou, Zhang, & Sun, 2022).

Entrepreneurship plays a fundamental role in stimulating economic growth within a country or region (Seth, 2019) and serves as a significant catalyst for promoting socioeconomic development (Gu, Wang, Hua, & Liu, 2021). It not only facilitates economic growth, enhances industrial advancement, and fosters the transformation and improvement of the economic framework, but also generates job prospects, stimulates technological advancement, and augments societal productivity (Andrews, Chatterji, Lerner, & Stern, 2022; Busenitz, West III, Shepherd, Nelson, Chandler, & Zacharakis, 2003; Hathaway & Litan, 2014). Due to its significance, entrepreneurship has garnered the interest of numerous experts and politicians.

Currently, China's economy is in the process of structural transformation, with a specific emphasis on supporting high-quality economic development. Amidst the dynamic landscape, the Chinese government places significant emphasis on innovation and entrepreneurship, considering them crucial components of their national policy. Guided by these policies, China's entrepreneurial ecosystem has realized notable achievements. According to Startup Blink's Global Entrepreneurial Ecosystem Index

2022 report, China ranks 10th out of the world's 100 largest economies in terms of the entrepreneurial ecosystem index (StartupBlink, 2023). The Global Innovation Index Report 2022, released by the World Intellectual Property Organization (WIPO), reveals that China's innovation and entrepreneurship index is ranked 11th (WIPO, 2022). The survey conducted by the aforementioned international organizations concluded that China's entire entrepreneurial environment has experienced notable enhancements in recent years. The "China Youth Entrepreneurship Development Report 2022" identifies individuals aged 19-23, including college students, recent graduates, and the unemployed, as the primary demographic in youth entrepreneurship. The report also reveals that 90% of these young entrepreneurs have at least a college education, it notes that approximately 70% of their entrepreneurial activities are focused in industries such as agriculture, forestry, animal husbandry, fishery, and the sectors of wholesale and retail trade, education, culture, sports, entertainment, accommodation, and catering (Kangtao, 2022).

Despite the enactment of various preferential policies by China to encourage entrepreneurship-including tax reductions, the provision of creative office spaces for entrepreneurs, and guaranteed loans-it is imperative to recognize that entrepreneurship still encompasses substantial risks, entrepreneurs, particularly young ones, face a multitude of challenges in achieving entrepreneurial performance, such as securing initial capital, market access barriers, talent shortages, inadequate knowledge and skills, regulatory environment, and others. These challenges exert a significant impact on their entrepreneurial performance (Kangtao, 2022). According to the 2022 China Youth Entrepreneurship Development Report, over half of young entrepreneurs experience fluctuating profits (China Youth Entrepreneurship Development Report 2022, 2022). Additionally, about 80% of college students have limited understanding of venture capital, while only 2.12% fit the criteria of "ready entrepreneurs" in the eyes of venture capital firms (zheng, 2021). Nearly 50% of college students consider the biggest challenge in the entrepreneurial process to be financial issues, while 31% believe that the main reason for entrepreneurial failure is also financial issues (Hong, 2017). Currently, the success rate of entrepreneurship among Chinese college students is comparatively low, standing at only 2-3%. In contrast, American college students have a success rate of over 20% in entrepreneurship (Mycos, 2017; Sieger, 2016).

Colleges and universities serve as the primary incubators for college student entrepreneurship, with college students being the driving force behind entrepreneurial activities in these institutions. Many prestigious colleges and universities host a wide range of technology-driven, rapidly expanding enterprises. Despite originating from diverse industries and employing distinct business strategies, the majority of companies nurtured within schools and universities remain in the early stages of development. Only a small fraction of these businesses achieves rapid funding, rapid growth, and progression to the later stages of development. Prolonged low growth will erode confidence among entrepreneurs and entrepreneurship educators in universities and inadvertently instill a sense of great uncertainty about entrepreneurial success in students. In order to assist these companies in overcoming the critical stage of early development known as the "valley of death," it is advisable for colleges and universities to prioritize their assistance towards enhancing the excellence and comprehensiveness of student entrepreneurship (Wang, 2019).

Entrepreneurship education systematically equips individuals with the knowledge, skills, and resources necessary to identify business opportunities and cultivate an entrepreneurial mindset (Tomy & Pardede, 2020). The course instructs students on the concept of entrepreneurship and provides guidance on how to pursue a career as an entrepreneur (Katherine & Jonathan, 2021). In China, entrepreneurship education has been implemented for a considerable period of time. As of 2016, over 82% of Chinese institutions required their students to take courses on innovation and entrepreneurship, in addition to offering optional courses in this field (Lee & Yuan, 2018). Despite the long-standing practice of entrepreneurship education in China, it is currently in its early stages. There is a need to establish a comprehensive entrepreneurship education system, and progress in improving entrepreneurship education and training is relatively slow (Slavica, Mike, & Ehud, 2018). A survey revealed that college student entrepreneurs express the highest demand for improvements in entrepreneurship education and training, with the level of demand reaching 31.7% (Wang, 2019). Survey data also show that 56.7% of college students believe that entrepreneurship courses offered by schools are helpful, while 20.98% say they are not helpful, and 22.32% are unsure. Insufficient guidance and cultivation in entrepreneurial practice channels provided by schools make students feel

unable to practice and apply what they have learned. Students urgently hope that schools can provide entrepreneurship counseling, financial support, policy support, skills training, and venue support for entrepreneurial college students (Qu, Zhao, & Niu, 2024). The primary purpose of some college students choosing entrepreneurship courses is to earn credits rather than to train thinking, acquire knowledge, and engage in practice (Li, 2020).

Overall, it is crucial to examine the influence of entrepreneurship education on entrepreneurial performance, considering the significance of entrepreneurship in China, the demand for entrepreneurship education among college and university students, and the notable rate of failure in entrepreneurship among college students.

1.1.2 Theoretical Background of the Study

This study investigates the significant influence of entrepreneurship education on entrepreneurial performance, utilizing a thorough analysis of existing literature and a full integration of data. Many knowledgeable researchers have developed different study models in the field of entrepreneurial performance. Experts have developed models to explain entrepreneurial skills (Herron, 2020; Mamabolo & Myres, 2020; Sariwulan, Suparno, Disman, Ahman, & Suwatno, 2020), self-efficacy (Raharjo, Ausat, Risdwiyanto, Gadzali, & Azzaakiyyah, 2023; Shen, 2021; Simarasl, Tabesh, Munyon, & Marzban, 2024), entrepreneurial intention (Chhabra, Raghunathan, & Rao, 2020; Tajpour & Hosseini, 2021), and entrepreneurial learning (Fang, 2019; Mai, 2023; Wang, 2019).

The previous corpus of research demonstrates a significant level of depth, providing a strong theoretical foundation for future inquiries. However, it is crucial to recognize certain shortcomings in the current body of knowledge, which can be categorized into five main areas. Firstly, although there is substantial research on both entrepreneurship education and entrepreneurial performance as separate variables, few studies have integrated these two variables, especially in terms of the impact of entrepreneurship education on entrepreneurial performance. The primary objective of entrepreneurship education is to foster the development of accomplished and exceptional entrepreneurs. How can one assess the quality of an exceptional entrepreneur? Evaluating the efficacy of entrepreneurs in real-world entrepreneurial settings requires examining the impact of entrepreneurship education on entrepreneurial performance.

Secondly, while several experts have developed models that explain the factors influencing entrepreneurial performance, these models frequently contain deficiencies in terms of theoretical foundations, depth of study, and the extent of discussions on interrelated variables. The specific ways in which entrepreneurship education impacts entrepreneurial performance are not fully understood.

Thirdly, certain studies have encountered issues in the division of research levels, such as individual level, team, or organizational level. This lack of clarity regarding the specific degree of influence has resulted in a confusing logic within these studies.

Fourthly, a significant portion of the research depends on questionnaires from other countries, which may not be perfectly suitable for Chinese entrepreneurs due to differences in culture, setting, and environment. Therefore, it is necessary to increase the use of instruments that are specifically designed for home purposes.

Fifthly, when examining the mechanisms that influence entrepreneurial performance, relatively few studies take environmental factors into account. There is a noticeable lack of study investigating the specific situational aspects that influence the connection between entrepreneurship education and an individual's aptitude and talents to be an entrepreneur. In addition, there has been a lack of focus on the impact of dynamic entrepreneurial contexts on entrepreneurial performance in terms of situational boundaries.

Overall, the field of theoretical research on the complex relationship between entrepreneurship education, entrepreneurial intent, entrepreneurial aptitude, and the dynamic contextual elements that influence entrepreneurial performance is still constrained by significant constraints. In order to advance above these limitations, there is a strong need for thorough theoretical investigation and rigorous empirical verification.

1.2 Research Question and Research Objectives

1.2.1 Research Question

Although the Chinese government has introduced several policies to promote entrepreneurship, such as tax reductions, startup incubator spaces, and guaranteed loans, entrepreneurs still face substantial risks and challenges. Young entrepreneurs, in

particular, have difficulty with funding, social networks, and gaining professional expertise. At the same time, while entrepreneurship education in China has grown quickly, it is still in its early stages and lacks systematization and effectiveness. This situation has prompted further investigation into the relationship between entrepreneurship education and entrepreneurial performance.

Therefore, this study explores the following key research questions:

RQ: How do entrepreneurial intention (EI) and entrepreneurial capability (EC) mediate the relationship between entrepreneurship education (EE) and entrepreneurial performance (EP) under varying levels of environmental dynamics (ED)?

1.2.2 Research Objectives

This study combines theoretical analysis and empirical research to investigate the relationship between entrepreneurship education and entrepreneurial performance, focusing on the mediating roles of entrepreneurial intention and entrepreneurial capability, as well as the moderating role of environmental dynamics. The following are the study's key objectives:

- (1) To examine the relationship between entrepreneurship education and entrepreneurial performance.
- (2) To explore the impact of entrepreneurship education on entrepreneurial performance through entrepreneurial intention and entrepreneurial capability and compare the differences in their mediating effects.
- (3) To investigate the impact of entrepreneurship education on entrepreneurial performance through entrepreneurial intention and entrepreneurial capability under the varying conditions of the environmental dynamics.

1.3 Scope of Study

This study focuses on examining the impact of entrepreneurship education on the personal entrepreneurial performance of student entrepreneurs in various categories of Chinese higher education institutions (HEIs). These institutions are classified into four categories: HEIs under central ministries and agencies, academic HEIs, professional HEIs, vocational HEIs, based on data from the Ministry of Education of the People's Republic of China as of December 29, 2022.

The subjects of this study come from the abovementioned four categories of HEIs. A mixed-methods approach combining quantitative and qualitative research was used. Quantitative data were collected via questionnaires, focusing on students actively involved in entrepreneurship and who had received entrepreneurship education. This stringent criterion ensures the inclusion of individuals with direct expertise in entrepreneurial activities. Scenarios in which entrepreneurs delegate managerial tasks to others were excluded from the study, as they fell outside its scope. In the qualitative research, the study subjects included both college student entrepreneurs who have achieved success in their entrepreneurial ventures, as well as university entrepreneurship education teachers or experts.

1.4 Conceptual Framework and Hypotheses

1.4.1 Conceptual Framework

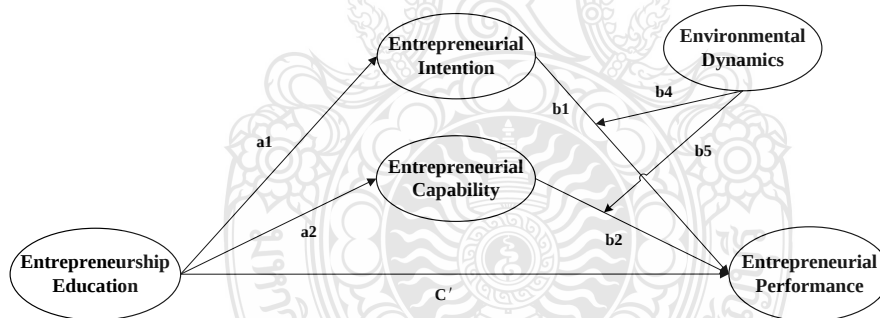


Figure 1.1 The Model of Conceptual Framework

1.4.2 Hypotheses

H1: Entrepreneurship education has a positive impact on entrepreneurial performance.

H2: The indirect effects of entrepreneurial education on entrepreneurial performance through entrepreneurial intention were changed subject to varying levels of environmental dynamics.

H2a: Entrepreneurial intention mediates the effects of entrepreneurship education on entrepreneurial performance.

(Note: Effect = $a1*(b1+b4*ED)$, so when $ED = 0$, the Effect = $a1*b1$)

H3: The indirect effects of entrepreneurial education on entrepreneurial performance through entrepreneurial capability were changed to varying levels of environmental dynamics.

H3a: Entrepreneurial capability mediates the effects of entrepreneurship education on entrepreneurial performance.

(Note: Effect = $a2*(b2+b5*ED)$, so when $ED = 0$, the Effect = $a2*b2$)

1.5 Definition of Terms

Entrepreneurship Education: Entrepreneurship education encompasses the pedagogical efforts within colleges and universities aimed at endowing learners with a comprehensive repertoire of knowledge, skills, and entrepreneurial mindsets through systematic and in-depth training. The ultimate goal is to empower individuals to effectively initiate, manage, and foster the growth of their own enterprises or excel within innovative and entrepreneurial organizations (Ning, He, Deng, & Zeng, 2023). In the assessment of entrepreneurship education, key metrics often include recipient engagement, satisfaction levels, learning outcomes, and institutional support.

Entrepreneurial Intention: Entrepreneurial intention encompasses an individual entrepreneur's deeply held beliefs and intentions pertaining to their capacity to partake in specific entrepreneurial activities and engage in various entrepreneurial behaviors. It also encapsulates the degree of commitment and effort an individual is willing to invest in their entrepreneurial pursuits (Ajzen, 2005).

Entrepreneurial Capability: Entrepreneurial capability is a comprehensive set of skills, knowledge, characteristics, and abilities that individuals possess within the field of entrepreneurship, enabling them to effectively conceive, operate, and develop their own enterprises or initiate entrepreneurial projects. These capabilities span a diverse spectrum, encompassing facets such as the identification of entrepreneurial opportunities, adept enterprise management, preparation for financial considerations, and adeptness in assembling and nurturing effective teams (Ning et al., 2023; Yang, 2023).

Environmental Dynamics: Environmental dynamics are defined as the variability and unpredictability of changes occurring within both the internal and external environments that influence an organization. These alterations encompass a broad spectrum, including shifts in market demand, technological advancements, competitive dynamics, regulatory frameworks, consumer preferences, and more. Emphasizing the perpetual flux and uncertainty within the business environment, environmental dynamics present firms and entrepreneurs with both challenges and opportunities (Wang, 2019).

Entrepreneurial Performance: In the context of this study, entrepreneurial performance refers to the extent to which specific tasks are completed, or goals are achieved throughout the entrepreneurial process. This can be reflected at the venture level, such as through business expansion, increased profitability, and market share growth, as well as at the individual level, including higher personal income, improved quality of life, and enhanced social status. Pertinent to this research, entrepreneurial performance comprises primarily two dimensions: financial performance and growth performance (Su, Pang, & Kong, 2016).

1.6 Research Contributions

1.6.1 Theoretical Contributions

This paper contributes to entrepreneurship theory in several key dimensions:

1. Expanding the Scope of Entrepreneurship Theory: The traditional theory of entrepreneurship primarily focuses on the human attributes of entrepreneurs, their psychological resources, and how the entrepreneurial environment influences their performance. Nevertheless, this study provides a more comprehensive viewpoint within entrepreneurship theory by considering entrepreneurial performance as a dependent variable. Examining the impact of entrepreneurship education on entrepreneurial performance expands the theoretical framework.

2. Exploring the Role Mechanism of Entrepreneurship Education: An extensive investigation of the influence of entrepreneurship education on entrepreneurial performance deepens our comprehension of the underlying mechanisms involved in entrepreneurship education. This study examines the impact of entrepreneurship

education on entrepreneurs' awareness, capacities, and performance, providing insights into its actual role and impacts in the process of starting and running a business.

3. Providing Decision Support and Policy Recommendations: An analysis of the impact of entrepreneurship education on entrepreneurial performance has significant consequences for decision-makers and policymakers in prominent universities, institutions specializing in entrepreneurship education, and entrepreneurs themselves. The results reported in this research can be used as a foundation for developing more scientifically rigorous and impactful strategies for entrepreneurship education. These policies have the objective of promoting and assisting entrepreneurs, decreasing the rate of entrepreneurial failure, and nurturing the strong growth of entrepreneurial ecosystems.

1.6.2 Realistic Contributions

This paper makes significant realistic contributions in the following areas:

1. Promoting the Enhancement of Entrepreneurship Education: An investigation into the influence of entrepreneurship education on entrepreneurial performance can uncover issues and shortcomings in entrepreneurship education. This can enhance the understanding of university entrepreneurship educators and managers regarding the significance of entrepreneurship education on entrepreneurial performance. Furthermore, it can serve as a crucial foundation for enhancing and refining entrepreneurship education, thereby fostering continuous improvement in this field.

2. Reducing Risk and Mitigating Entrepreneurial Failures: Entrepreneurship education is becoming increasingly important in providing entrepreneurs with the necessary knowledge, skills, and mindset to strengthen their entrepreneurial efforts. It promotes a greater understanding of entrepreneurship, encourages creative thinking and approaches, and ignites the innovative capabilities of entrepreneurs. Consequently, this enables entrepreneurs to effectively handle the complex problems that are inherent in entrepreneurship. Furthermore, entrepreneurship education provides entrepreneurs with enhanced risk management techniques, thereby decreasing the probability of entrepreneurial failure and mitigating the economic and societal hazards connected with entrepreneurship.

3. Fueling Entrepreneurship, Economic Development, and Job

Creation: The prosperity and expansion of a business are intricately linked to the performance of the entrepreneur. This study acts as a catalyst for economic prosperity and job creation by enhancing the performance of entrepreneurs and promoting the development and expansion of exceptional entrepreneurial projects. It drives the path of entrepreneurial advancement, thereby making a tangible contribution to overall economic growth and job prospects.



CHAPTER 2

REVIEW OF THE LITERATURE

2.1 Introduction

This study investigates the impact of entrepreneurship education on entrepreneurial performance. Additionally, it examines the parallel roles of entrepreneurial intention and entrepreneurial capability, alongside the moderating effect of environmental dynamics. To better achieve the research objectives, this chapter provides a systematic literature review, focusing on the concepts and dimensions of entrepreneurship education, entrepreneurial intention, entrepreneurial capability, environmental dynamics, and entrepreneurial performance. It identifies previous studies that explore the relationships among these variables. Subsequently, grounded in the Theory of Planned Behavior and Self-Efficacy Theory, as well as insights from the literature review, this study proposes research hypotheses and a conceptual framework.

2.2 Entrepreneurship Education

2.2.1 Origin and Definition of Entrepreneurship

The word "entrepreneurship" has its etymological roots in the word "entrepreneur," which itself has French origins. Specifically, the phrase "entreprendre" means "to undertake" or "proceed." The term "entrepreneurship" was first used in the late 18th and early 19th centuries by the renowned French economist Jean-Baptiste Say, who painstakingly created the notion in the pages of his monumental work, "Traité d'économie politique," which was published in 1803. Say gave the world the definition of "entrepreneurship" in the elegant prose of his seminal work: "the dynamic process of crafting value while boldly navigating the seas of risk, achieved by the astute reallocation of resources from inefficient or low-yielding applications to ventures marked by efficiency and high-yield returns." This insightful description highlights the vital role that entrepreneurs play in creating new opportunities and value through the skillful repurposing and combining of resources, all the while demonstrating a preference for measured risks. The definition of "entrepreneurship" has changed significantly in the modern era, expanding its meaning beyond traditional entrepreneurial principles. The

current environment encompasses a wider range of ideas and practices related to entrepreneurship, including both classic principles and a diverse range of modern aspects. These include the domains of science and technology entrepreneurship, social entrepreneurship, the development of an entrepreneurial culture, the complicated web of entrepreneurial ecosystems, and the propagation of entrepreneurship education. Table 2.1 provides a thorough explanation of these complex aspects and illustrates how entrepreneurship is changing in contemporary times.

Table 2.1 Definition of Entrepreneurship

Category	Author	Definition
Social Entrepreneurship	Kumar, 2023	Emphasizes the use of entrepreneurship and business models to address social issues and the pursuit of social impact and social value, rather than just the pursuit of economic profit. It requires entrepreneurs to commit to solving social, environmental, and health problems and to promoting social change and sustainable development.
Technology Entrepreneurship	Audretsch & Link, 2019	Address market needs by developing new technology products, services, and solutions. Technology entrepreneurship is often closely associated with high-tech industries and the digital economy.
Entrepreneurial Ecosystem	Isenberg, 2011	A set of interconnected organizations, institutions, and resources that support the growth of entrepreneurs and entrepreneurial activity. Entrepreneurial ecosystems provide resources and services such as entrepreneurial support, incubators, venture capital, and entrepreneurial education.
Entrepreneurship Culture	Acs, Autio, & Szerb, 2014	The value and encouragement of innovation, risk-taking, autonomy, and commitment in a society, organization, or team. An entrepreneurial culture encourages employees to take the initiative to innovate and take responsibility for driving the organization's growth and competitiveness.

Table 2.2 Definition of Entrepreneurship (Cont.)

Category	Author	Definition
Entrepreneurship Education	Shane, 2003	Promote innovation, creativity, and entrepreneurial awareness among students and young people, encouraging them to take the initiative to innovate and pursue entrepreneurial opportunities.

Note. Author's compilation

Experts in China have established a definition for entrepreneurship that considers the unique attributes and societal ramifications that are unique to the Chinese context. As an illustration, "Entrepreneurship Management," a publication by Song Zhigang, a highly regarded scholar in the field of entrepreneurship in China, provides the following definition of entrepreneurship: "the endeavor of individuals or groups to establish or restructure enterprise organizations while pursuing economic and social benefits while operating under diverse social conditions" (Cao & Cao, 2011). Entrepreneurship is defined as "an independent innovative behavior involving the recombination of knowledge, technology, capital, and other elements to create a new organization, product, or service, and continuously undergoing organizational changes and upgrades in pursuit of profits and other social values," according to the research of management scholar Hu Haifeng (Hu, 2016). Additionally, entrepreneurship is defined as "the activity of establishing and developing new businesses, promoting economic structural transformation and upgrading, and facilitating social development," according to the research of economist Gong Yuxin (Gong, 2014). The lack of progress in entrepreneurship education in China has resulted in Chinese scholars adopting definitions that align with those of their international counterparts. These definitions underscore the notion that entrepreneurship entails the establishment of novel organizations, businesses, or enterprises, the assumption of associated risks, the pursuit of profits, and the attainment of individual or collective objectives.

In summary, scholarly investigations into entrepreneurship indicate that it is an extensive societal phenomenon that has been the subject of extensive discourse and in-depth study on a global scale.

2.2.2 Definition of Entrepreneurship Education

It is widely acknowledged that the origins of entrepreneurship education can be traced back to the United States, where a seminal milestone was reached when Harvard Business School introduced the groundbreaking course "Management of New Ventures" in 1945. This landmark initiative, documented by Fayolle and Gailly (2008), is widely regarded as one of the pioneering efforts in the realm of entrepreneurship education. Subsequently, the integration of entrepreneurship education into higher education systems gained momentum (Fayolle & Gailly, 2008).

In the mid-20th century, entrepreneurship education embarked on a journey of expansion across leading American universities, marking the genesis of dedicated entrepreneurship courses and programs, as delineated by Kuratko (Kuratko, 2005). The 1970s and 1980s witnessed a global diffusion of entrepreneurship education, extending its influence not only within business schools but also permeating diverse academic disciplines, as expounded by Henry, Hill, and Leitch (Henry, Hill, & Leitch, 2005). By 1980, the pedagogical landscape had evolved to encompass experiential education and internship programs, emphasizing active student involvement in entrepreneurial endeavors, as highlighted by Fayolle and Gailly (Fayolle & Gailly, 2008).

As the 1990s unfolded, the emergence of entrepreneurship education extended its reach to Europe, Asia, and other regions, with nations increasingly prioritizing the cultivation of entrepreneurship and innovation, in accordance with Kuratko (Kuratko, 2005). Early in the 21st century, entrepreneurship education assumed a pivotal role in global higher education reform efforts, prompting governments to launch comprehensive entrepreneurship policies and support initiatives, a transformation elucidated by Neck and Greene (Neck & Greene, 2011).

Fast-forward to 2010, and entrepreneurship education entered a phase of diversification, expanding its purview to primary, secondary, and vocational education. Educational institutions fervently championed entrepreneurship curricula and programs, emphasizing immersive, hands-on pedagogy and real-world experiential learning to instill a culture of innovation and entrepreneurship among students, as underscored by Fayolle and Gailly (Fayolle & Gailly, 2015).

In the years 2020 and beyond, entrepreneurship education will continue its meteoric global ascent. The works of Chen, Ifenthaler, and Yau as well as Gillani, Senin, Bode, and Gillani attest to the field of entrepreneurship education's continued prominence and unwavering attention and support despite the COVID-19 pandemic's necessity for a shift towards online teaching for some educational activities. This steadfast trajectory underscores the enduring significance of entrepreneurship education in shaping the entrepreneurial leaders of tomorrow (Chen, Ifenthaler, & Yau, 2021; Gillani, Senin, Bode, & Gillani, 2022).

In an era where entrepreneurship education has assumed a paramount position in various nations, its flourishing development has garnered considerable attention from experts worldwide. However, despite the heightened focus, a unanimous global consensus regarding the precise definition of entrepreneurship education remains elusive. This absence of a singular definition stems from the inherently intricate and multifaceted nature of entrepreneurship education, a discipline subject to nuanced delineations shaped by diverse cultural milieus, contextual factors, and disciplinary paradigms, as astutely observed by Klofsten and Jones-Evans in 2000 (Klofsten & Jones-Evans, 2000).

Within this expansive landscape, diverse experts and scholars may approach entrepreneurship education from distinct vantage points, each spotlighting specific facets of this intricate field. Consequently, these varied perspectives give rise to a spectrum of definitions for entrepreneurship education. A comprehensive elucidation of these nuanced distinctions can be found in Table 2.2 for further insight and reference.

Table 2.3 Definition of Entrepreneurship Education

Perspective	Author	Definition
Pedagogical Perspective	Lin, Moriano, & Zarnowska, 2008	Entrepreneurship education is an educational and learning activity that enhances students' entrepreneurial knowledge, skills, attitudes, and personal qualities.
Economic Development Perspective	Peterman & Kennedy, 2003; Pittaway & Cope, 2007	Entrepreneurship education helps to train a new generation of entrepreneurs, promote the development of new industries, facilitate employment growth, and create economic value.

Table 2.4 Definition of Entrepreneurship Education (Cont.)

Perspective	Author	Definition
Social Innovation Perspective	Fayolle & Gailly, 2015 Bacigalupo, Kampylis, Punie, & Van den Brande, 2016	Entrepreneurship education is an important way to stimulate social innovation and change. It encourages students to proactively identify social problems and challenges and address them through entrepreneurial activities and social innovation programs.
Interdisciplinary Perspective	Fayolle & Gailly, 2008	Entrepreneurship education promotes integration and crossover between disciplines. Through interdisciplinary teaching and collaboration, it can produce more well-rounded and innovative entrepreneurs.
Entrepreneurial Environment Perspective	Boon, Van der Klink, & Janssen, 2013	Entrepreneurship education is characterized by interactive learning linked to business and community activities, and there is a sense of industry relevance.
Globalization Perspective	Maritz & Brown, 2013 Rasmussen, Mosey, & Wright, 2011	Entrepreneurship education provides entrepreneurship education exchange and cooperation between different countries and regions, facilitates entrepreneurial activity on the international stage, and produces entrepreneurs with a global background and competitiveness.
Sustainability Perspective	Rashid, 2019	Entrepreneurship education is planned, implemented, and evaluated with due regard to the economic, social, and environmental elements of sustainability, as well as the growth and development of entrepreneurs.
Ideological Perspective	Jones, Penaluna, & Pittaway, 2014	The goal of entrepreneurship education is to change the mindset of students so that they properly view the concept of innovation and risk-taking activities in business.
Affective, Cognitive Perspective	Kyro, 2008; Jones & Colwill, 2013	The effectiveness of entrepreneurship education is determined by the study of affective learning, cognition, and beliefs. It is the emotional and cognitive changes brought about by the educational experience.

Note. Author's compilation

A holistic examination of experts' perspectives on entrepreneurship education reveals a multifaceted construct comprising three key dimensions:

Firstly, entrepreneurship education serves as a vehicle for enriching students' comprehension of entrepreneurship, bolstering their entrepreneurial skill set, and empowering them to apply acquired knowledge effectively. It is instrumental in honing their practical problem-solving acumen, thus equipping them to navigate real-world challenges adeptly. Secondly, this educational paradigm aspires to nurture a cadre of individuals imbued with a potent spirit of innovation and entrepreneurship. It endeavors to instill in students a heightened sensitivity to novel ideas and emerging opportunities. In doing so, it positions them as future champions of innovation and entrepreneurship, poised to be torchbearers of transformative change. Thirdly, entrepreneurship education assumes a broader societal role by cultivating agents of change. It instills in students a deep-seated commitment to effecting positive transformations within society. This dimension inspires and encourages students to engage in the resolution of pressing social problems and challenges, thereby fostering a culture of social innovation. Ultimately, it aspires to engender individuals capable of catalyzing tangible positive changes and impactful contributions to society at large.

Based on the previous description of entrepreneurship education, along with the insights gained from the research conducted in this paper, this paper defines entrepreneurship education as: entrepreneurship education encompasses the pedagogical efforts within colleges and universities aimed at endowing learners with a comprehensive repertoire of knowledge, skills, and entrepreneurial mindsets through systematic and in-depth training. The ultimate goal is to empower individuals to effectively initiate, manage, and foster the growth of their own enterprises or excel within innovative and entrepreneurial organizations (Ning et al., 2023). In the assessment of entrepreneurship education, key metrics often include recipient engagement, satisfaction levels, learning outcomes, and institutional support.

2.2.3 Dimension of Entrepreneurship Education

There is no generally accepted standard for the division of dimensions of entrepreneurship education in the academic world. The authors collected the relevant

studies on entrepreneurship education in recent years and found that there are several main aspects about the dimensions of entrepreneurship education.

Two dimensions: Ning Depeng et al. (2023) pointed out that entrepreneurship education can be categorized into two dimensions, the student factor and the school factor, where the student factor includes three aspects of learning participation, learning satisfaction, and learning effect, and the school factor refers to the school's support for entrepreneurship education (Ning et al., 2023). Maria Ripollés et al. (2023) explored the impact of the logic and learning characteristics of different types of entrepreneurship education in terms of mandatory and voluntary entrepreneurship education on promoting students' entrepreneurial behavior in higher education environments (Ripollés & Blesa, 2023). Davide Hahn et al. (2020) conducted an experimental study on the impact of entrepreneurship education on entrepreneurial skills in a sample of 427 college students in terms of both mandatory and elective entrepreneurship education (Hahn, Minola, Bosio, & Cassia, 2020). Eric Liguori and Christoph Winkler (2020) examined the impact of entrepreneurship education on entrepreneurial skills during the New Crown Epidemic by comparing traditional entrepreneurship education and online education approaches. Using a case study approach (Liguori & Winkler, 2020), Herry Porda et al. (2022) concluded by examining theoretical entrepreneurship education and practical entrepreneurship education, emphasizing that entrepreneurship education is not only limited to theoretical frameworks but also enters the realm of practice to enable students to acquire both hard and soft skills for entrepreneurship in the future (Putro, Nugroho, Rusmaniah, Mutiani, Abbas, Jumriani, & Ilhami, 2022).

Three dimensions: Jiang Li et al. (2020) studied the differences in the influence of entrepreneurship education on college students' entrepreneurial intentions of different genders from the dimensions of entrepreneurship courses, entrepreneurial activities, and academic exchanges (Jiang, Yu, Liang, Lu, & Gu, 2020). Ge Aihong (2022) studied the influence of entrepreneurship education on college students' entrepreneurial intention from the dimensions of entrepreneurship knowledge, entrepreneurship clubs, and entrepreneurship practice (Ge, 2022). Xu Hongjun (2023) believed that entrepreneurship education is divided into three dimensions: the entrepreneurship environment, entrepreneurship learning, and entrepreneurship competition (Xu, 2023).

Four dimensions: a study by Gustav Hägg and Jonas Gabrielsson (2020) on how entrepreneurship education has evolved over the past decades, discussing the shift in entrepreneurship education from addressing teachability to a greater emphasis on learnability and examining it through four analytical building blocks: teachers (who), content (what), objectives (for whom), and teaching methods (how) (Hägg & Gabrielsson, 2020). Lu Qiuping (2015) believes that entrepreneurship education can be divided into four dimensions: entrepreneurship courses, entrepreneurship lectures, entrepreneurship competitions, and entrepreneurship practice (Lu, 2015). Wang Xinhuan, et al. (2016) believe that entrepreneurship education can be divided into four dimensions: entrepreneurship courses, entrepreneurship activities, academic exchanges, and entrepreneurship awards (Wang, Bo, & Lei, 2016).

Five dimensions: Messele Kumilachew Aga (2023) examined the relationship between entrepreneurship education and entrepreneurial intentions in Ethiopian universities in terms of five dimensions of entrepreneurship education: curriculum, entrepreneurship lectures, academic communication, entrepreneurship, and sense of self-efficacy (Aga, 2023). Shahrokh Nikou et al. (2023) explored how to influence entrepreneurship educators' preference to follow a teacher-centered or student-centered approach from five dimensions: self-efficacy, teaching philosophy, entrepreneurship training, teaching experience, and gender (Nikou, Brush, & Wraae, 2023). Rosman Mahmood et al. (2021) explored the impact of entrepreneurship education on graduates' business performance through five key aspects. These include providing entrepreneurship programs, offering real business environments, regularly updating the entrepreneurship curriculum, improving basic facilities, and offering mentorship. These aspects collectively contribute to shaping the effectiveness of entrepreneurship education in preparing graduates for entrepreneurial success (Mahmood, Zahari, Ibrahim, Jaafar, & Yaacob, 2021). Chen Du et al. (2023) explored the impact of entrepreneurship education on the performance of college students returning to their hometowns from five aspects: theoretical courses of entrepreneurship education, practical courses, entrepreneurial atmosphere of the school, teacher capability, and teaching management of the school (Chen & Shuai, 2023).

In conclusion, experts have examined the complex landscape of entrepreneurship education through various lenses. Previous research has outlined four primary dimensions

that encapsulate the essence of entrepreneurship education: The School Aspect: This dimension encompasses the entrepreneurial ambiance within educational institutions, the pedagogical proficiency of educators, and the broader entrepreneurial ecosystem fostered by the institution. Students' Participation: This dimension relates to the active engagement of students in both theoretical and practical aspects of entrepreneurship education. Students' Learning Effect: This dimension assesses the efficacy and impact of entrepreneurship education, gauging how effectively it imparts knowledge and skills. Students' Overall Evaluation: This dimension reflects students' comprehensive appraisal of the entrepreneurship education they receive within their educational institutions.

In light of this multifaceted landscape, it can be argued that the dimensions of entrepreneurship education can be effectively categorized into four overarching areas: personal involvement, personal satisfaction, learning effect, and school support. These dimensions collectively provide a comprehensive framework for assessing and understanding the nuances of entrepreneurship education. These dimensions are defined as follows:

Personal Involvement: Within the realm of entrepreneurship education, personal involvement signifies the extent of active engagement exhibited by students in entrepreneurship courses or programs. It also encapsulates the frequency of students' participation in various forms of entrepreneurship education initiatives organized by the educational institution (Li, 2014). This facet stands as one of the pivotal determinants of entrepreneurship education, playing a pivotal role in the cultivation of students' entrepreneurial acumen and innovative thinking. These dimensions are defined as follows:

Personal Satisfaction: In the context of entrepreneurship education, personal satisfaction pertains to the degree of contentment experienced by students with respect to entrepreneurship education courses, programs, or activities. It embodies college students' subjective judgment and evaluation of the substance and quality of entrepreneurship education within their educational institutions (Li, 2014). This metric assumes a pivotal role as one of the key indicators of entrepreneurship education, encompassing facets such as theoretical instruction, practical training, entrepreneurship lectures, and entrepreneurship competitions, among others.

Learning Effect: In the domain of entrepreneurship education, the learning effect denotes the growth and development of knowledge, skills, attitudes, and competencies

acquired by students through their engagement with entrepreneurship education courses, programs, or activities. It constitutes college students' self-assessment and perception of their mastery of the content imparted through the institution's entrepreneurship education curriculum (Li, 2014). This encompassing metric encompasses not only the acquisition of knowledge but also the nurturing of entrepreneurial spirit and the development of risk awareness, reflecting the multifaceted impact of entrepreneurship education on individuals.

School support: In entrepreneurship education, school support refers to the support and resources that a school or higher education institution provides to students to facilitate their entrepreneurship education experience. This support is critical to the development of students' entrepreneurial skills and innovation, including school focus, faculty, hardware, and software facilities (Ning et al., 2023).

2.2.4 Antecedents of Entrepreneurship Education

Innovation and entrepreneurship education within the higher education landscape hold profound significance on multiple fronts. It plays a pivotal role in enhancing the caliber of talent cultivation among college students, bolstering employment rates, and catalyzing broader societal advancement. Strengthening innovation and entrepreneurship education stands as a paramount strategy for propelling comprehensive reforms within higher education systems, thereby augmenting the quality of talent nurtured by these institutions.

2.2.4.1 Environmental Factors and Entrepreneurship Education

Research has delved into the intricate interplay between environmental factors and entrepreneurship education, uncovering noteworthy insights:

Eesley and Wang (2017) embarked on a groundbreaking exploration into the sway of social influence on entrepreneurial intentions. Their randomized experiment illuminated that the presence of an entrepreneurial mentor and the cultivation of a positive social network wielded substantial influence over young individuals' entrepreneurial aspirations, particularly in high-risk contexts (Eesley & Wang, 2017).

Lackéus, Lundqvist, Middleton, and Indén (2020) conducted a comprehensive synthesis of global entrepreneurship education, encompassing its objectives, pedagogical methodologies, and impact assessments. Their findings underscored the burgeoning proliferation of entrepreneurship education worldwide while emphasizing the

imperative of tailoring educational approaches to diverse cultural contexts and regional exigencies (Lackéus, Lundqvist, Middleton, & Inden, 2020).

Lai Zeyuan (2015) articulated a compelling perspective, advocating for concerted efforts spanning college students themselves, their families, educational institutions, and society at large. Such collective endeavors are posited as pivotal in kindling college students' fervor for independent entrepreneurship, nurturing entrepreneurial awareness, and fostering entrepreneurial prowess (Lai, 2015).

These studies collectively underscore the profound impact of external environmental factors on the efficacy of entrepreneurship education. Furthermore, Davide Hahn and his colleagues (2020) delved into the educational terrain, scrutinizing the influence of different course types, including elective and mandatory courses, on students' entrepreneurial skills (Hahn, Minola, Bosio, & Cassia, 2020). Their findings elucidated the symbiotic relationship between the social environments of the university and the family, jointly shaping the acquisition of entrepreneurial skills among young individuals.

2.2.4.2 The Current Landscape of Entrepreneurship Education Development in China

The trajectory of entrepreneurship education in China has garnered considerable research attention, with scholars shedding light on various facets of its development:

Jia Weiping and colleagues (2022) conducted a comparative analysis, juxtaposing entrepreneurship education in Chinese colleges and universities with that of Western developed nations. Their findings illuminated that China's innovation and entrepreneurship education traditionally relied on singular teaching methodologies and encountered challenges related to faculty expertise. They advocated for enhancements encompassing the cultivation of students' cultural acumen, the bolstering of professional discipline infrastructure, and the optimization of faculty quality (Jia, Wu, & Guo, 2022).

Zhao Yanzeng and Wu Jun (2022) delved into a nuanced assessment of the internal and external dimensions shaping entrepreneurship education within academia. Their innovative approach harnessed big data analytics to pioneer a novel pathway for entrepreneurship education. This approach involved the precise identification of

entrepreneurial talent among college students, supplementing their knowledge with insights into entrepreneurship law, market dynamics, and finance (Zhao & Wu, 2022).

Huang Shaoxin and Huang Yangjie (2022) conducted an extensive survey encompassing 98 Chinese universities, drawing from a sample of 25,082 college students. Their research underscored the pivotal role played by entrepreneurship courses, dedicated entrepreneurship educators, entrepreneurial competitions, and hands-on entrepreneurial experiences in nurturing college students' entrepreneurial acumen. They advocated for the integration of entrepreneurship education with mainstream professional education, evolving from solitary classroom instruction to a multifaceted educational approach (Huang & Huang 2022).

Dai Fei and Wu Hongbo (2022) embarked on an exploration of the developmental trajectory of entrepreneurship education, with a focus on students majoring in economics and management. Their insights underscored the importance of intertwining entrepreneurial theoretical knowledge with practical experience. They proposed a multifaceted support system for entrepreneurship education, encompassing curriculum design, mentorship networks, and comprehensive course structures, to enhance the practical entrepreneurial abilities of students in this field (Dai & Wu, 2022).

Yan Lining and colleagues (2021) harnessed the Triple Helix Innovation Theory to craft an innovative model for entrepreneurship education. They formulated a cooperative "government, industry, and university" framework, delineating a concrete implementation path for this model. This framework fosters enhanced synergy among government entities, industry stakeholders, and academic institutions within the sphere of innovation and entrepreneurship education. It emerges as an efficacious model for cultivating multifaceted talents equipped with an entrepreneurial spirit and practical acumen, providing solutions to the growing demand for applied innovation and entrepreneurship talents (Yan, Li, & Jiao, 2021).

2.2.5 Outcome Factors of Entrepreneurship Education

2.2.5.1 Entrepreneurship Education and Entrepreneurial Performance

Ren Shengang's insights in 2017 underscore a compelling connection between entrepreneurship education and the development of an initiative-driven personality among students. This transformative shift towards proactive dispositions is intricately linked

to heightened entrepreneurial intentions and improved entrepreneurial performance. Notably, entrepreneurship education plays a pivotal moderating role in this context. The more effective the entrepreneurship education, the more pronounced its catalytic impact on initiative-driven personality traits and, subsequently, on entrepreneurial willingness and performance (Ren, Jiang, & Jia, 2017).

Zhao Lei's research in 2012 sheds light on the robust correlation between entrepreneurship education and entrepreneurial performance within Chinese colleges and universities. It underscores the pivotal role of enhancing the entrepreneurship education ecosystem within these institutions, indicating a tangible enhancement in college students' entrepreneurial performance through the refinement of entrepreneurship education systems (Zhao, 2012).

Chen Du's (2023) perspective accentuates the multifaceted avenues through which entrepreneurship education can elevate the entrepreneurial performance of college students, especially those returning to their hometowns. Improving the quality of entrepreneurship education teachers, creating an environment that encourages entrepreneurship, adding more practical entrepreneurship experiences, improving the entrepreneurship curriculum, and improving the overall teaching and management aspects of entrepreneurship education are all big ways to help these students become better entrepreneurs (Chen & Shuai, 2023).

Shi Qinghai's (2018) research posits that, within the realm of entrepreneurship education, several pivotal elements exert substantial positive influences on entrepreneurial performance. These encompass school support, engagement in entrepreneurial learning, and active participation in social activities. Remarkably, among these factors, school support emerges as the most influential in fostering entrepreneurial excellence (Shi, 2018).

2.2.5.2 Entrepreneurship Education and Entrepreneurial Intention

An array of empirical studies has consistently illuminated the substantial and affirmative influence of entrepreneurship education on entrepreneurial intention (Ge, 2022; Huang, Zhong, Sheng, Sheng, Pang, Zeng, Zeng, & Li, 2022; Li, 2014; Ning, He, Deng, & Zeng, 2023; Wang, 2016; Xu, 2023). Entrepreneurship education emerges as a potent catalyst, cultivating entrepreneurial attitudes and intentions while equipping students with the necessary foundation for entrepreneurial pursuits (Martin, McNally, & Kay, 2013).

Participation in entrepreneurship education engenders a multifaceted impact. It not only augments individuals' comprehension of entrepreneurship and kindles their interest in this domain but also provides them with firsthand exposure to the entrepreneurial process. This experiential learning contributes to elevating their entrepreneurial knowledge to a practical level, diminishing apprehensions associated with entrepreneurship, and ultimately heightening their entrepreneurial intentions (Li, Xu, Zeng, & Zhou, 2012).

The research by Tehran underscores the substantial impact of entrepreneurship education on raising entrepreneurial awareness. Attending a comprehensive suite of entrepreneurship courses is linked to a remarkable 1.3-fold increase in entrepreneurial awareness among individuals (Dehghanpour Farashah, 2013).

Messele Kumilachew Aga's study in 2023 delves into the nuanced role of perceived behavioral control as a mediator in the relationship between entrepreneurship education and entrepreneurial intention within Ethiopian universities. Notably, entrepreneurship education not only exerts a direct positive influence on entrepreneurial intention and perceived behavioral control but also engenders a dynamic interplay where perceived behavioral control emerges as a predictive factor for entrepreneurial intention. This multifaceted relationship underscores the pivotal role of entrepreneurship education in shaping entrepreneurial intentions and fostering self-perceived efficacy in entrepreneurial endeavors (Aga, 2023).

2.2.5.3 Entrepreneurship Education and Entrepreneurial Capability

Central to the notion that entrepreneurship can be cultivated is the belief that entrepreneurial capability can be nurtured through entrepreneurship education. According to Yang Xueru (2018), entrepreneurship education is a type of educational program that enhances individual entrepreneurial capability while instilling fundamental qualities (Yang, 2018).

Within the realm of entrepreneurship education, individuals embark on a journey of self-improvement, cultivating their entrepreneurial knowledge and skills. This transformative process equips them to confront challenges, surmount obstacles, and enhance their analytical aptitude for effective problem-solving (Fayolle & Gailly, 2015; Gorman, Hanlon, & King, 1997; Lu, 2015; Thanasi-Boçe, 2020; Yang, 2023).

Rana Ismaeel Alsaad and colleagues (2023) conducted an empirical exploration into the determinants of women entrepreneurs' capabilities in the Kingdom of Bahrain. Their findings underscored the positive impact of higher education, sociocultural factors, and policy frameworks in enhancing entrepreneurial competencies among women entrepreneurs (Alsaad, Hamdan, Binsaddig, & Kanan, 2023).

Furthermore, the study by Cruz, Rodriguez Escudero, Hernangomez Barahona, and Saboia Leita0 (2009) delved into the effects of entrepreneurial education programs on innovation and business success. Notably, individuals who participated in executive education and entrepreneurship education programs exhibited heightened capability for innovation, underscoring the transformative potential of entrepreneurship education in enhancing entrepreneurial capabilities (Cruz, Rodriguez Escudero, Hernangomez Barahona, & Saboia Leita0, 2009).

2.3 Entrepreneurial Intention

2.3.1 Definition of Entrepreneurial Intention

The concept of intention, rooted in psychology, delves into a mental state that serves as an early psychological indicator of an individual's anticipatory behaviors, closely aligned with their specific beliefs about the future. Intention is a dynamic state characterized by tension, empowering individuals to uphold their values, exhibit persistence, and invest sustained effort in the face of adversity and resistance (Bugental, Caporael, & Shennun, 1980; McClelland, 1985).

The infusion of intention research from the realm of psychology into the domain of entrepreneurship has notably enriched the perspective of entrepreneurship studies. Of particular significance is the notion of entrepreneurial intention, which stands as a pivotal construct in the entrepreneurship research landscape. Positioned as the intermediary phase between entrepreneurship education and entrepreneurial action, entrepreneurial intention emerges as a paramount and frequently employed variable within this field (Krueger Jr, Reilly, & Carsrud, 2000).

It's worth noting that throughout the process of literature collection and analysis, the authors observed variations in nomenclature, with some scholars referring to it as "entrepreneurial orientation" or "entrepreneurial tendency." Consequently, the ensuing

literature review on entrepreneurial intention does not confine itself solely to the topic of entrepreneurial intention, acknowledging the broader spectrum of related constructs in this multifaceted domain.

Bird (1988) was the first to define "entrepreneurial intention". He defined it as the psychological state wherein entrepreneurs channel their attention, energy, and actions toward specific goals. Bird (1988) emphasized that entrepreneurial intention represents an internal psychological inclination and motivation, reflecting an individual's positive attitude and expectations regarding entrepreneurial activities (Bird, 1988). These positive attitudes and expectations play a pivotal role in propelling entrepreneurs from intention to concrete action, influencing their decision-making, behaviors, and persistence throughout the entrepreneurial process.

Subsequently, numerous scholars have provided their own definitions of entrepreneurial intention. For instance, Krueger (1993) conducted comprehensive research on entrepreneurial intention, offering a detailed definition. He posited that entrepreneurial intention signifies an individual's or a group's commitment to engaging in entrepreneurial activities, serving as the motivation and determination to translate intention into tangible actions. Krueger (2000) emphasized the significant role and predictive value of entrepreneurial intention in entrepreneurial behavior (Krueger Jr et al., 2000; Krueger & Carsrud, 1993). Similarly, Thompson (2009) echoed these sentiments, describing entrepreneurial intention as an individual's belief in the intent to establish a new enterprise, which may manifest as a concrete action in the future (Thompson, 2009). However, this belief is merely an idea, and the realization of this idea is uncertain, potentially occurring swiftly or not at all.

Lee and Wong (2004) defined entrepreneurial intention as "the desire and propensity to engage in entrepreneurial activities, manifested as a proactive attitude and willingness to establish new businesses or expand new ventures." They highlighted desire and propensity as key elements of entrepreneurial intention, signifying an individual's willingness and determination to actively participate in entrepreneurial actions. Furthermore, they broadened the definition of entrepreneurial intention beyond an individual's willingness to establish a new enterprise, encompassing the intention of existing business operators to

expand their ventures (Lee & Wong, 2004).

Wang Ying (2011) and Jane Dandan et al. (2010), through summarizing previous literature, regarded entrepreneurial intention as a psychological process positioned in the midst of the entrepreneurial journey. In this context, individual and environmental variables influence entrepreneurial behavior via entrepreneurial intention (Jane Dandan, 2010; Wang, 2011).

While most experts share similarities in their definitions of entrepreneurial intention, there are instances of substantial disparities. For example, Jenkins and Johnson (1997), based on their research objectives, defined entrepreneurial intention as the desire of individuals who have already embarked on entrepreneurship (Jenkins & Johnson, 1997). In contrast, Singh and DeNoble (2003) considered entrepreneurial intention as the intent of individuals to possess a business and become self-employed (Singh & DeNoble, 2003). These two definitions deviate from the core concept of "intent to engage in entrepreneurship," as they relate to individuals who have already initiated entrepreneurial endeavors or aspire to business ownership and self-employment. These definitions differ from the notion of "desiring to engage in entrepreneurship," even if the actual entrepreneurial action may not materialize (Shook, Priem, & McGee, 2003).

Quality research relies on well-defined concepts (Dodgson, 2020). Despite decades of academic exploration into entrepreneurial intention, a unified definition remains elusive. However, based on the comprehensive review of entrepreneurial intention concepts provided above, it becomes evident that Bird, Lee and Wong, Thompson, Jane Dandan et al., and Ying Wang have presented clear and comprehensive definitions of entrepreneurial intention.

Building upon these previous studies, this paper synthesizes their insights to assert that entrepreneurial intention encompasses an individual's beliefs and intentions concerning their capability to take part in specific entrepreneurial behaviors and successfully complete a series of entrepreneurial activities.

2.3.2 Dimensions of Entrepreneurial Intention

Regarding whether the structure of entrepreneurial intention is unidimensional or multidimensional, it is not mentioned more in the existing research, and there are three classical theoretical models that experts use to study the factors of entrepreneurial

intention as well as the effects produced: the model of the theory of planned behavior, the model of the theory of entrepreneurial events, and the model of the theory of self-efficacy.

2.3.2.1 Theoretical Model of Planned Behavior (TPB)

Ajzen et al. (1985) introduced the Theoretical Model of Planned Behavior (TPB), depicted in Figure 2.1. This theory elucidates the psychological process through which individuals formulate behavioral intentions within a specific context (Ajzen, Kuhl, & Beckmann, 1985). The TPB model has found extensive application in the examination of various behavioral intentions, including those related to entrepreneurship. It comprises three primary components: attitude, subjective behavioral norms, and perceived behavioral control.

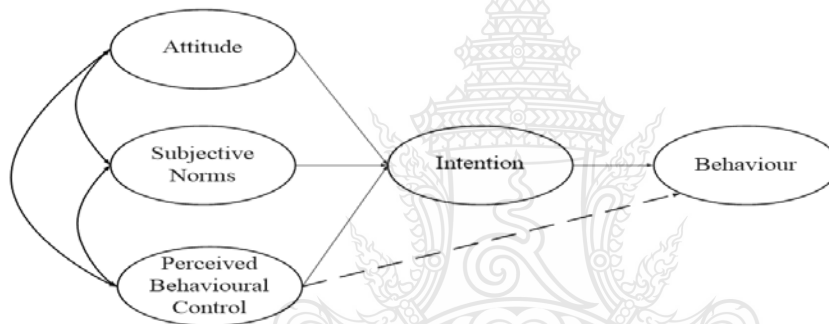


Figure 2.1 Theoretical Model of Planned Behavior (Ajzen et al., 1985)

Attitude: Attitude represents the positive or negative evaluation of engaging in a particular activity. In the context of entrepreneurial intention, it pertains to an individual's perspective on entrepreneurial endeavors. If individuals perceive entrepreneurship as a means to fulfill personal goals and values, they are likely to cultivate positive attitudes and exhibit heightened entrepreneurial intentions.

Subjective Norms (SNs): Subjective norms encompass the expectations and pressures exerted by the social environment upon individuals regarding their engagement in specific behaviors. In the realm of entrepreneurial intention research, subjective norms gauge the extent of recognition and support for entrepreneurship within an individual's social milieu. If individuals perceive encouragement and backing for

entrepreneurship from their social circles, they may be inclined towards entrepreneurial behaviors.

Perceived Behavioral Control: This component gauges the degree of an individual's confidence and perceived control over participating in a particular behavior. In the context of entrepreneurial intention research, it reflects an individual's self-assurance in their capability and access to resources for engaging in entrepreneurial activities. Individuals are more likely to express positive entrepreneurial intentions if they believe they possess the requisite abilities and resources to initiate a business venture.

2.3.2.2 Shapero's Model of Entrepreneurial Event (SEE) and Krueger's Model of Entrepreneurial Event (SEK)

In 1982, Shapero introduced the entrepreneurial event model, as shown in Figure 2.2. Perceived Desirability, perceived feasibility, and propensity to act are the three main factors that influence entrepreneurial intentions, according to this model. Shapero (1982) posited that an individual's intention to engage in entrepreneurship arises from their perception of the need for it, the feasibility of starting a business, and their inclination to take action when presented with an opportunity.

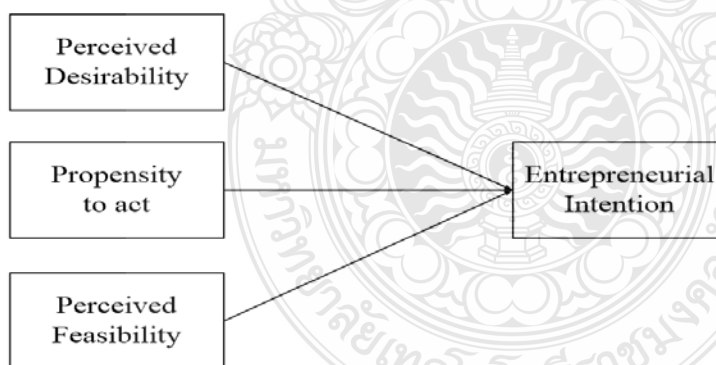


Figure 2.2 Shapero's Model of Entrepreneurial Event (SEE) (Shapero & Sokol, 1982)

Perceived Desirability encompasses the extent to which an individual views engaging in entrepreneurial activities as attractive and valuable. When individuals believe that entrepreneurship aligns with their personal goals, fulfills their needs, and resonates with their values and interests, they are more likely to perceive it as highly desirable.

Perceived feasibility, on the other hand, relates to an individual's confidence in their ability to initiate a business venture and assesses the potential for becoming an entrepreneur. It essentially reflects self-efficacy, wherein individuals gauge their own capability to undertake entrepreneurial endeavors.

Propensity to act, the third factor, signifies one's inclination to follow through with their decisions autonomously. It hinges on an individual's perception of control and their preference for achieving control through decisive actions. All three variables exert a positive influence on entrepreneurial intentions, with perceived feasibility exerting the most substantial impact (Shapero & Sokol, 1982)

Krueger and Carsrud (1993) made significant revisions to the entrepreneurial event model, enhancing our understanding of the dimensions of perceived Desirability and perceived feasibility. In his revisions, Krueger delved deeper into the factors that impact both perceived Desirability and perceived feasibility. He introduced the concepts of perceived Desirability and perceived feasibility as mediating variables within the revised model. Furthermore, Krueger highlighted the role of specific needs in shaping perceived Desirability and emphasized that self-efficacy plays a crucial role in influencing perceived feasibility (Krueger & Carsrud, 1993).

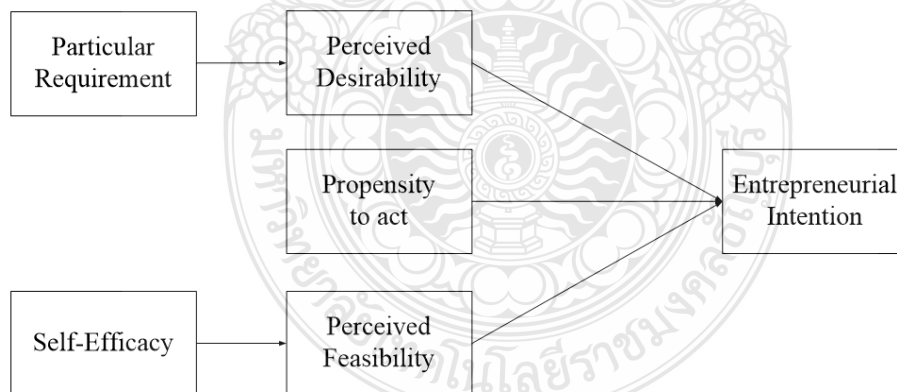


Figure 2.3 Krueger 's Model of Entrepreneurial Event (SEK) (Krueger & Carsrud, 1993)

2.3.2.3 Bandura's Self-Efficacy Theory of Motivation in Psychology

The self-efficacy model, initially proposed by Bandura in 1977 and depicted in Figure 2.3, centers on an individual's confidence and perceived capability in engaging in entrepreneurial activities. It evaluates the extent to which an individual

believes in their capabilities and skills to perform a specific task within a given context. In this model, the level of confidence an individual has in their abilities plays a pivotal role in shaping entrepreneurial intentions.

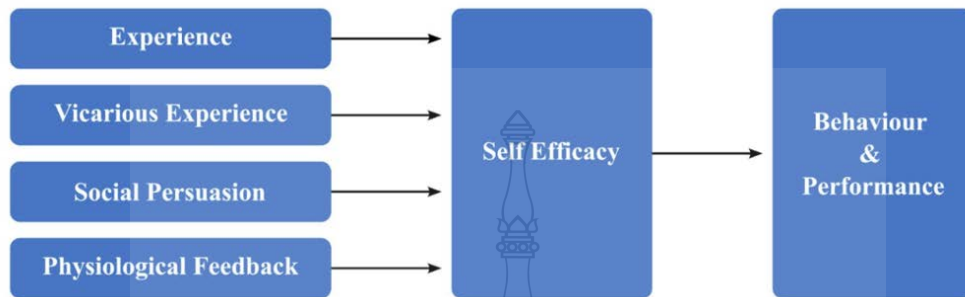


Figure 2.4 Bandura's Self-Efficacy Theory of Motivation in Psychology (Bandura, 1977)

When confronted with entrepreneurial prospects, individuals conduct an assessment of their abilities, skills, and available resources to achieve their entrepreneurial objectives. If individuals perceive that they possess the requisite skills to initiate a business venture, their entrepreneurial intentions tend to be higher. Conversely, if they believe they lack the essential skills and resources, their entrepreneurial intentions may be lower. It is crucial to underscore that self-efficacy is not directly tied to an individual's existing entrepreneurial skills (Bandura, 1977).

Therefore, the perceived level of self-efficacy holds more significance than an individual's actual skill set when investigating individual behavior. Consequently, self-efficacy often serves as a key variable for examining individual differences in various studies.

In China, some experts had also studied the dimensions of entrepreneurial intention as shown in Table 2.3.

Table 2.5 Classification of Entrepreneurial Intention Dimensions by Chinese Experts

Author	Number of dimensions	Dimension division
Fan Wei and Wang Chongming (2006)	2	Entrepreneurial Aspiration, Entrepreneurial Feasibility
Xue, Yongji and Zhai, Xiang (2012)	2	Entrepreneurial probability, entrepreneurial inclination
Jinyun Duan, Yue Xu, and Xiaoming Tian (2015)	2	Conditional entrepreneurial intentions (entrepreneurial orientation, need), unconditional entrepreneurial intentions (individual control, responsibility, achievement orientation)
Liu, Zhi (2013)	3	Perceived Desirability, entrepreneurial behavioral tendencies, entrepreneurial feasibility
Sun Yang (2015)	3	Contextual factors, environmental factors, personal characteristics
Mei, Wei Hui Zhang, Wei Yi (2023)	3	Regulatory system, normative system, cognitive system
Xue, Yongji, Ma Ben (2014)	4	Personal background, entrepreneurial attitudes, entrepreneurial beliefs, entrepreneurial tendencies

Note. Author's compilation

Through the preliminary combing of related literature, we found that although experts have not formed a unified understanding of the dimensional structure of entrepreneurial intention, it is generally agreed that entrepreneurial intention contains three basic dimensions: behavioral tendency, aspiration, and feasibility. Therefore, in connection with this study, we take the theory of planned behavior as the theoretical basis of the study and select the key variables of Shapero's entrepreneurial event model to predict the entrepreneurial intention of individuals. There are three dimensions: perceived Desirability, perceived feasibility, propensity to act. These dimensions are defined as follows:

Perceived Desirability: Perceived Desirability pertains to the extent to which an individual perceives the allure and value inherent in engaging in a particular activity. This construct encompasses an individual's expectations regarding the rewards, aspirations, and visions associated with entrepreneurial endeavors. It also encompasses the personal and professional gratification an individual aspires to derive from their

involvement in entrepreneurship. Individuals tend to view entrepreneurship as highly desirable when they believe it aligns with their personal goals, fulfills their individual needs, and resonates with their values and interests (Shapero & Sokol, 1982).

Perceived Feasibility: Perceived feasibility pertains to an individual's beliefs and assessment regarding their capability to successfully initiate a business venture or implement an innovative entrepreneurial endeavor. It reflects the individual's confidence in entrepreneurship and factors in their assessment of the likelihood of becoming a successful entrepreneur. This construction is intricately linked to the feasibility of entrepreneurial opportunities for the individual and is a reflection of self-efficacy (Shapero & Sokol, 1982).

Propensity to Act: Propensity to act refers to an individual's inclination to enact their own decisions, guided by their volition. These tendencies hinge upon an individual's perception of control and their preference for exerting control through action (Shapero & Sokol, 1982).

2.3.3 Antecedents of Entrepreneurial Intention

In the research on antecedent variables of entrepreneurial intention, most studies have focused on entrepreneurship education, individual demographic characteristics, and external environmental factors as antecedent variables of entrepreneurial intention. The effect of entrepreneurship education on entrepreneurial intention has been discussed in detail in the previous section and will not be discussed here.

2.3.3.1 The Impact of Demographic Attributes of the Individual on Entrepreneurial Intentions

In the context of entrepreneurial intention research, demographic characteristics encompass personal background factors such as age, gender, education, and family background. These factors play a crucial role in analyzing and comprehending the development and impact of entrepreneurial intentions.

Age, gender, and family background are all influential factors affecting entrepreneurial intentions. Typically, younger individuals exhibit a greater inclination towards pursuing entrepreneurial opportunities due to their often more adventurous and innovative nature (Liñán, Rodríguez-Cohard, & Rueda-Cantuche, 2011). Young people tend to be more at ease with the volatility and uncertainty associated with

entrepreneurship compared to their older counterparts, who may prioritize security and stability.

Moreover, gender disparities have been observed in entrepreneurial intentions, with men displaying a higher likelihood of harboring positive entrepreneurial intentions in certain studies (Camelo-Ordaz, 2016). These disparities may be attributed to socio-cultural factors that have historically provided men with more extensive opportunities within the entrepreneurial domain compared to women.

Furthermore, the economic status of one's family and the nature of their parents' occupations significantly influence entrepreneurial intentions. Individuals hailing from entrepreneurial backgrounds tend to exhibit more favorable entrepreneurial intentions (Tubadji, Santarelli, & Patuelli, 2016).

2.3.3.2 The Impact of Extraneous Environmental Variables on Entrepreneurial Intention

The external environment exerts a significant influence on the formation and evolution of entrepreneurial intentions. This environment encompasses economic, legal, political, and various other factors that can profoundly affect individuals' inclinations toward engaging in entrepreneurial activities.

The economic environment holds substantial sway over entrepreneurial intentions. Booming economic conditions tend to inspire more individuals to contemplate entrepreneurship because they perceive greater opportunities and potential rewards within such contexts. Conversely, economic downturns may diminish entrepreneurial intentions as individuals become increasingly apprehensive about risks and uncertainties (Liñán et al., 2011).

Government policies and the legal framework can act as moderators of entrepreneurial intentions. Policies that foster entrepreneurship, including tax incentives, entrepreneurial support programs, and measures to reduce barriers to entrepreneurship, can heighten interest in entrepreneurial pursuits (Waseem, Rashid, & Akbar, 2021). Conversely, convoluted and burdensome legal regulations may impede the development of entrepreneurial intentions.

2.3.3.3 Antecedent Variables Influencing Entrepreneurial Intention

Academic research examining the influence of the outcome variable of entrepreneurial intention primarily concentrates on its impact on entrepreneurial behavior, as this represents a pivotal element for entrepreneurial activities. The relationship between entrepreneurial intention and entrepreneurial behavior is a central concern in the realm of entrepreneurship research. Entrepreneurial intention pertains to an individual's psychological inclination and eagerness to partake in entrepreneurial activities, whereas entrepreneurial behavior encompasses the actual engagement in entrepreneurial pursuits, such as initiating a new venture, expanding an existing one, or participating in innovative initiatives (Bird, 1988).

Notably, entrepreneurial intention serves as a precursor to entrepreneurial behavior. Before forming entrepreneurial intentions, individuals typically evaluate the feasibility of entrepreneurial opportunities through self-assessment and market research a process that can stimulate entrepreneurial intention (Liñán & Fayolle, 2015). Favorable interest and belief in the feasibility of entrepreneurial opportunities often lead to more positive entrepreneurial intentions. Research has consistently demonstrated a positive correlation between an individual's entrepreneurial intention and subsequent entrepreneurial behavior (Kautonen, Van Gelderen, & Fink, 2015). While entrepreneurial intention may not invariably translate directly into entrepreneurial behavior, it can be regarded as a reliable predictor of such conduct (Wen & Li, 2010; Liu, Lu, & Peng, 2011). Entrepreneurial intention not only motivates individuals to choose entrepreneurship but also exerts influence over their action plans and decisions, driving them to actively pursue entrepreneurial opportunities (Krueger Jr, Reilly, & Carsrud, 2000; Tian & Hu, 2014; Wei & Li, 2015).

According to Ajzen's Theory of Planned Behavior (TPB), an individual's expectations about the outcome of a behavior, social norms, and beliefs about the control of the behavior all influence people's behavior (Ajzen, 1991). When individuals harbor positive entrepreneurial intentions, they are more likely to perceive entrepreneurship as beneficial, socially acceptable, controllable, and attainable. This heightened perception subsequently augments their willingness to engage in entrepreneurial behavior.

2.4 Entrepreneurial Capability

2.4.1 Definition of Entrepreneurial Capability

"Capability" is usually synonymous with skill. It posits that individual capabilities encompass various facets, such as educational attainment and professional proficiencies. When viewed from an entrepreneurial perspective, entrepreneurial capabilities constitute a repertoire of aptitudes and knowledge essential for entrepreneurs to conduct their entrepreneurial endeavors (Liñán et al., 2011). This encompasses not only expertise in specialized domains but also proficiencies in leadership, communication, decision-making, and innovative thinking pertaining to management (Alijani, 2013).

Scholars have, based on different vantage points, defined entrepreneurial capability in diverse ways. From a managerial standpoint, entrepreneurial capability encompasses the management and leadership competencies indispensable for entrepreneurs when embarking on entrepreneurial ventures. These competencies encompass strategic planning, market analysis, team administration, and decision-making. From this angle, entrepreneurial capabilities are those imperatives for entrepreneurs to establish and manage their enterprises (Klofsten, Urbano, & Heaton, 2021).

Approaching the topic from a psychological dimension, entrepreneurial capability underscores the personal attributes and psychological traits inherent in entrepreneurs—the psychological traits and attitudes that entrepreneurs embody (Welter & Scrimshire, 2021). These encompass self-efficacy, stress tolerance, and mental resilience.

From an educational viewpoint, entrepreneurial capability centers on the learning and training of entrepreneurs. Education and training serve as instrumental means through which entrepreneurs can acquire the requisite knowledge and competencies, including business plan development, financial management, and marketing. Systematic entrepreneurship education and training enable entrepreneurs to enhance their entrepreneurial skills and elevate their prospects for entrepreneurial success (Liñán et al., 2011).

Alternatively, from a sociological perspective, entrepreneurial capability accentuates an entrepreneur's proficiency in building social networks and leveraging

resources. Entrepreneurs must adeptly construct social connections and secure resource support. Furthermore, entrepreneurs need a profound understanding of market dynamics and the ability to discern social needs and trends to adapt to the evolving business landscape (Zahra & Wright, 2015).

In summation, the definition of entrepreneurial capability can be comprehended through multiple lenses, including management, psychology, education, and sociology. Each of these perspectives underscores distinct facets of the skills and attributes requisite for entrepreneurial ventures. Through continuous learning and practical experience, entrepreneurs can refine their entrepreneurial skills and lay a robust foundation for successful entrepreneurial pursuits.

In the context of this study, entrepreneurial capability is defined as the aptitude of college students to engage in entrepreneurial activities. This encompasses both the entrepreneurial capability of current students and their readiness for entrepreneurial activities in the one-to-five-year period following graduation (Yang, 2023).

2.4.2 Dimensions of Entrepreneurial Capability

Different theoretical perspectives on the dimensions of entrepreneurial capability are different, and most scholars have put the main focus on the points of opportunity, resources, etc. when exploring the dimensions of entrepreneurial capability. The following is the division of scholars on the dimensions of entrepreneurial capability.

Two dimensions: Some scholars regard exploratory capability and exploitative capability as two distinct dimensions of entrepreneurial capability. Exploratory capability refers to the identification of opportunities in the market, and exploitative capability refers to the utilization of firm resources, opportunities, etc. Díaz-Casero et al. (2012) view entrepreneurial capability from the perspective of motivation and skills, with motivation being a personal trait of the entrepreneur and skills being a generalization of the various competencies (Díaz-Casero, Hernández-Mogollón, & Roldán, 2012). Li Xianglong (2020), Lv Huiming, and Wang Feijong (2021) categorized entrepreneurial competencies as opportunity recognition and resource acquisition (Li & Wang, 2020; Lv & Wang, 2021).

Three dimensions: Mosakowskie (1997) argues that there are three dimensions of entrepreneurial capability, namely the opportunity dimension, the relationship

dimension, and the strategy dimension (Mosakowski, 1997). Tang Jing (2008) combed the existing research results and argues that entrepreneurial capability is embodied in the three dimensions of opportunity identification, development, and operation management (Tang & Jiang, 2008). Ning Depeng et al. (2023) and others classify entrepreneurial capability as opportunity identification capability, resource acquisition capability, and resource acquisition capability (Ning et al., 2023).

Four dimensions: entrepreneurial competencies were categorized into communication skills, leadership, critical thinking, and problem-solving skills by Sarom Tem et al. (Tem, Kuroda, & Tang, 2020). Wattanakomol and Silpcharu (2023) argued that entrepreneurial competencies can be categorized into leadership, resource management skills, personal traits, and personal ethics (Wattanakomol & Silpcharu, 2023). Man T. W.Y. et al. (2002) pointed out in their study that entrepreneurial competencies consist of four dimensions: resource combination, team formation, opportunity identification, and strategic orientation (Man, Lau, & Chan, 2002).

Five dimensions: Jens Prüfer et al. (2020), in their study, concluded that entrepreneurial competencies are categorized into communication, leadership, creativity, learning, and cooperation (Prüfer & Prüfer, 2020). Fan Wei (2017) considered entrepreneurial learning-related ability, psychological stress resistance, identification of opportunities, organizational and management ability, and innovation and creativity as components of the entrepreneurial ability of college students (Fan, 2017).

Six dimensions: Some scholars believe that entrepreneurial capability consists of six dimensions: opportunity capability, relational capability, conceptual capability, organizational capability, strategic capability, and commitment capability (Man & Lau, 2000; Man, Lau, & Chan, 2002; Man, Lau, & Chan, 2008). Chandler et al. (1993) explained in their study that entrepreneurial capability consists of six dimensions, which are opportunity recognition, opportunity encounter, conceptual, human-organizational relationship, political, and functional (Chandler & Hanks, 1993).

In connection with this study, the dimensions of entrepreneurial capability are categorized into four dimensions, which are opportunity identification, managerial capability, financial readiness, and team building capability. These dimensions are defined as follows:

Opportunity Identification: Opportunity identification entails the capability of an individual or entrepreneur to astutely recognize, assess, and harness novel business prospects within the intricate landscape of commerce. This capability assumes paramount significance in the entrepreneurial journey, as the attainment of entrepreneurial success frequently hinges on the adept identification of promising opportunities and the subsequent translation of these insights into entrepreneurial initiatives (Liu, 2022; Ning, 2017).

Managerial Capability: Managerial capability stands as a pivotal component for entrepreneurs, underpinning their capability to effectively oversee and nurture the growth of their enterprises. It encompasses the proficiencies necessary to strategize, organize, lead, coordinate, and regulate an array of business activities, all aimed at realizing the enterprise's long-term objectives and fostering its sustainable development. The essence of entrepreneurs' managerial capability prominently manifests in their adeptness at overseeing the day-to-day operations and functions of their businesses (Yang, 2023).

Financial Readiness: Financial readiness pertains to the capability of entrepreneurs to proficiently secure and manage financial resources throughout the startup phase. This aptitude assumes paramount significance in ensuring the prosperous initiation, operation, and expansion of a business venture. Entrepreneurs must possess the acumen to identify and tap into various sources of capital to fulfill the diverse financial requirements of the enterprise, spanning start-up capital, operational capital, and expansion capital (Ning, 2017).

Team Building Capability: Entrepreneurial team building skills encompass an entrepreneur's proficiency in effectively crafting, nurturing, and steering a cohesive team during the business commencement process. This entails the ability to discern and attract suitable team members, foster a climate of cooperation and collaboration within the team, inspire and engender commitment among team members, and adeptly address conflicts and challenges that may arise within the team dynamics (Chen, Greene, & Crick, 1998).

2.4.3 Antecedents of Entrepreneurial Capability

Antecedent variables of entrepreneurial capability encompass those influential factors that determine whether an individual possesses the requisite skills and qualities to

embark on entrepreneurial pursuits. These antecedent variables hold a position of paramount significance in entrepreneurship research, as they wield the power to forecast and elucidate the occurrence and triumph of entrepreneurial behavior. The comprehensive panorama of antecedent variables encompasses entrepreneurship education, entrepreneurial experience, creative acumen, decision-making process, risk-taking propensity, and social connections. We delve into these aspects below, with a particular focus on those beyond the realm of entrepreneurship education, which has been expounded upon in the preceding section.

Entrepreneurial Experience: The crucible of entrepreneurial experience bestows upon an entrepreneur the dexterity to navigate the labyrinth of challenges and uncertainties intrinsic to the entrepreneurial voyage. Individuals endowed with entrepreneurial experience often emerge as torchbearers of success when embarking on new entrepreneurial ventures (Ucbasaran, Westhead, Wright, & Flores, 2010). This experiential wealth not only bolsters an entrepreneur's self-confidence but also hones their acumen in judgment, equipping them to efficaciously respond to the rigors of market competition.

Creative Thinking: At the heart of entrepreneurship lies the imperative to think creatively and innovatively, unfurling new vistas of business opportunities and devising ingenious solutions. Empirical research has unveiled the penchant of entrepreneurs for prodigious creativity, fostering the birth of novel business concepts and problem-solving strategies (Sarasvathy, 2008). This creative ingenuity not only sets entrepreneurs apart but also fortifies their standing in the crucible of competition.

Decision-Making Proficiency and Risk-Taking Prowess: The entrepreneurial terrain is replete with pivotal decisions and beset by the specter of uncertainty and risk. Entrepreneurs, therefore, necessitate astute decision-making skills and the valor to embrace risk. Research postulates that entrepreneurs inherently possess a proclivity for risk-taking and an appetite for the prospect of failure (Li & Ahlstrom, 2020). Their decision-making compass is characterized by adaptability and a capacity for swift course correction in response to evolving circumstances.

Social Connections: The tapestry of entrepreneurial success is often interwoven with the threads of extensive social networks. These networks serve as conduits for

resources, support, and collaborative opportunities, affording entrepreneurs access to a trove of vital information and capital. Social networks wield an affirmative influence on entrepreneurial triumph (Leyden, Link, & Siegel, 2014). Entrepreneurs who cultivate relationships with peers, investors, and industry luminaries are poised to harness the full spectrum of entrepreneurial capability, for these connections pave the way for invaluable insights and synergistic collaborations.

In essence, these antecedent variables, from entrepreneurial experience to creative thinking, decision-making acumen, risk-taking audacity, and social affiliations, serve as the bedrock upon which entrepreneurial capability is built. They constitute the elemental forces that shape and empower entrepreneurs in their quest for success.

2.4.4 Outcome Factors of Entrepreneurial Capability

2.4.4.1 Entrepreneurial Capability and Entrepreneurial Intention

The nexus between entrepreneurial capability and entrepreneurial intention constitutes a riveting focal point within the landscape of entrepreneurship research. Nestled within the overarching canopy of entrepreneurial capability, innovation prowess emerges as a pivotal facet. Those possessing an innate penchant for innovation stand poised to ignite the sparks of entrepreneurial intention (Shane, 2003). Entrepreneurs, often entrusted with the mantle of leadership, find themselves in a domain where leadership skills wield profound influence. Individuals adorned with these skills exude confidence, adeptly molding and steering teams—a defining trait that kindles the flames of entrepreneurial aspiration (Ensley, Hmieleski, & Pearce, 2006).

In the entrepreneurial arena, astute opportunity recognition skills become the compass guiding prospective entrepreneurs. These individuals display a knack for discerning latent business prospects, gauging market needs, and spotting the tendrils of future growth opportunities (Shane & Venkataraman, 2000). This prescient acumen acts as a catalyst, kindling the embers of positive entrepreneurial intentions.

The luster of entrepreneurial intention is further burnished when individuals find themselves in possession of ample financial resources (Nabi, Liñán, Fayolle, Krueger, & Walmsley, 2017). Adequate financial preparation transforms aspiration into action, allowing individuals to underwrite and propel entrepreneurial

projects to fruition. Thus, those fortified with robust financial groundwork are more apt to leap into the arena of entrepreneurial endeavors.

In the intricate dance of entrepreneurial capability and intention, each component plays a distinct role, forming a harmonious symphony where innovation, leadership, opportunity recognition, and financial readiness intertwine to shape the entrepreneurial landscape.

2.4.4.2 Entrepreneurial Capability and Entrepreneurial Behavior

The intrinsic link between entrepreneurial capability and entrepreneurial behavior unfolds as a captivating realm within entrepreneurship research. It is within this dynamic interplay that the seeds of innovation and novel ideation find fertile ground (Shane, 2003). The more abundant an entrepreneur's wellspring of entrepreneurial capability, the more likely they are to embark on journeys of innovation, birthing new products, and services, or pioneering unique business concepts.

In the tapestry of entrepreneurial undertakings, leaders with exceptional leadership skills shine as guiding stars. Their adeptness in orchestrating and overseeing business operations propels them toward the attainment of set objectives (Ensley et al., 2006). Guo, Runping, and Cai, Li (2014) posits that entrepreneurial capability stands as a formidable catalyst, serving as a linchpin for the ignition of entrepreneurial pursuits and the realization of success (Guo & Cai, 2014). This assertion resonates with studies conducted by Wang Xiaowen et al. (2011) and Rasmussen et al. (2011), both of which illuminate the pivotal role played by entrepreneurial capability in fostering the smooth execution and triumph of entrepreneurial activities (Rasmussen, Mosey, & Wright, 2011; Zhang & Wang, 2011).

2.4.4.3 Entrepreneurial Capability and Entrepreneurial Performance

A wealth of empirical studies attests to the affirmative influence exerted by entrepreneurial capability on entrepreneurial performance. For instance, Pieterse et al. (2011) assert that entrepreneurial capability assumes a pivotal role in the decision-making process of embarking on entrepreneurial ventures and in the subsequent operational success of these ventures. Simultaneously, it has a substantial impact on the overall performance trajectory of nascent businesses (Pieterse, Van Knippenberg, & van Ginkel, 2011).

Zhang et al. (2009) delve into the intricate web of entrepreneurial capability, unveiling its multifaceted contributions. They posit that entrepreneurial capability empowers entrepreneurial enterprises to seize opportunities proactively, fostering heightened risk awareness and enabling objective evaluations of opportunities (Zhang, Tansuhaj, & McCullough, 2009). This trifecta of capabilities contributes significantly to the financial and strategic prowess of entrepreneurial firms.

Withers et al. (2011) illuminate yet another facet of entrepreneurial capability's multifarious effects. Beyond enhancing opportunity identification, entrepreneurial capability facilitates resource acquisition, which is pivotal in the development and realization of opportunities (Withers, Drnevich, & Marino, 2011). This two-fold capability reinforces the tapestry of entrepreneurial success by both identifying and harnessing potential avenues for growth.

In the symphony of entrepreneurial capability and its repercussions on behavior and performance, the resonance of innovation, leadership acumen, and resource utilization coalesce to weave a narrative where entrepreneurial capability stands as the bedrock upon which entrepreneurial ventures thrive and flourish.

2.5 Environmental Dynamics

2.5.1 Definition of Environmental Dynamics

Environmental dynamics, a term that resonates with both entrepreneurship and management research, emerges as a crucial concept meriting profound exploration. Its significance reverberates across the echelons of business strategy, performance metrics, and the realm of innovation.

At the heart of entrepreneurship lies a distinct hallmark—an unwavering exposure to the ceaseless ebb and flow of the external environment. In this maelstrom of change, environmental dynamics assume a pivotal role. It encapsulates the capriciousness, the unpredictability, and the velocity of alterations that ripple through the business landscape (Dess & Beard, 1984). Environmental dynamics charts the trajectory of change, weighing both the celerity and the capriciousness that pervade the environment.

In essence, the more intricate the environment, the more enigmatic its nature becomes. Its labyrinthine patterns elude predictability, offering no solace to those seeking

a fixed course. It is this very enigma-the ceaseless transformation and the ever-elusive predictability-that coalesce to form the dynamic essence of the environment.

In scholarly circles, the consensus is resolute-the environment remains in a perennial state of flux. This acknowledgement underscores the intricacy and unpredictability that underpin the environment's dynamic properties.

The journey of environmental dynamics research finds its inception within the realms of management and strategic management. At its core, this inquiry delves into the profound impact of unceasing change and the specter of uncertainty that shrouds the business environment, exploring their intricate dance with firm performance and the nuanced landscape of strategic decision-making.

The pioneering echoes of environmental dynamics research resonate back to the annals of history, where Thompson (2017) first ventured into the uncharted territory of business environments characterized by ceaseless dynamics (Thompson, 2017). Duncan (1972) followed suit, etching an academic definition of environmental dynamics. He posited that "complexity" and "dynamics" stood as twin sentinels guarding the environment's intricacies. He discerned these attributes as the dual facets shaping the environment's fabric (Duncan, 1972).

The 1980s and 1990s bore witness to the blossoming of environmental dynamics research, focusing its lens on the profound influence of the external environment upon firm performance. Factors such as market competition, technological metamorphosis, and regulatory fluctuations occupied the forefront of this scholarly exploration. Miller and Friesen (1983) etched their mark upon this landscape, expounding the concept of firms adapting to the tempestuous currents of the external environment and plumbing the depths of these dynamics' effects on firm performance (Miller & Friesen, 1983).

As the theory of environmental dynamics matured in the late 20th century and early 21st century, scholars embarked on a more profound voyage. They delved into the multifarious dimensions and influences of environmental dynamics, uncovering market dynamics, technological dynamics, and political dynamics. These explorations ventured into the intricate terrain of external factors, market trends, technological advances, and the crucible of competitive pressures. Lumpkin and Dess (1996) charted their course

through these shifting tides, exploring the symbiotic relationship between entrepreneurial orientation and firm performance and introducing environmental dynamics as a moderating force (Lumpkin & Dess, 1996).

After the 2000s, a new chapter unfolded, wherein the rise of dynamic capabilities and strategic perspectives ushered in fresh insights. Research on environmental dynamics is intertwined with concepts such as dynamic capabilities and strategic adaptability. It underscored how firms could forge the resilience to navigate changing environments. Zahra and George (2017) heralded the dawn of dynamic capabilities, emphasizing the imperativeness of continuous learning and adaptive strategies to contend with the ceaseless cadence of environmental dynamics (Zahra & George, 2017).

In recent years, the tapestry of environmental dynamics research has expanded its horizons. It ventured into the realm of internationalization and embraced the diversity of firms across distinct cultural milieus. This exploration sought to unravel the dynamics of business environments across myriad countries and regions. Some studies embarked on probing the disparities in environmental dynamics across various industries and domains. They illuminated the strategic choices required to navigate the varying tempests of environmental dynamics.

In summation, the arc of environmental dynamics research has evolved from its nascent theoretical constructs to the depths of empirical inquiry over the past decades. Presently, a more coherent definition of environmental dynamics has crystallized—a dynamic environment is defined as "changes in technology, changes in customer preferences, and fluctuations in market demand and raw material availability" (Wang, 2019). This definition mirrors the rhythm of change in consumer inclinations, demand patterns, competitive paradigms, and the myriad forces coursing through the market landscape (Achrol & Stern, 1988).

2.5.2 Dimensions of Environmental Dynamics

Within the tapestry of environmental dynamics research, the exploration of its dimensions has been a focal point. The scholarship in this domain has predominantly cast its spotlight on the trinity of technology, market forces, and the ever-shifting sands of consumer demand. This multidimensional dynamic unfolds as a harbinger of

environmental uncertainty, serving as a poignant reminder that the entrepreneurial terrain remains shrouded in ambiguity. The entrepreneurial environment of a firm, by its very essence, eludes preemptive comprehension. This inherent unpredictability profoundly reverberates within the corridors of business decisions and the orchestration of strategic maneuvers (Lumpkin & Dess, 2001).

Indeed, Dess and Lumpkin (2001) proffer that environmental dynamics find their identity in the cloak of environmental uncertainty (Lumpkin & Dess, 2001). This paradigm underscores the reality that the entrepreneurial landscape is, by nature, an enigma, immune to preconceived notions. This cryptic characteristic casts a long shadow, casting its influence upon the decision-making matrix of a firm and the subsequent execution of its strategic vision.

In the architectural construction of environmental dynamics, Duncan (1972) adroitly carved a division, delineating the environment into the realms of the external and the internal (Duncan, 1972). The firm itself emerges as the epicenter, with its existing assets and resources composing the internal environment. Conversely, the external environment unfurls beyond the firm's confines, encompassing myriad stakeholders, social factors, institutions, and economic elements. This external expanse stretches from the supply and marketing realms to the competitive arena, spanning the entire journey from product development to market entry. Duncan's rendition of the environment, imbued with intricacies, defies active control—a characteristic intrinsic to its essence.

Delving deeper into the multifarious dimensions of environmental dynamics, Yu Shaozhong (2013) employed a quartet of metrics to gauge their intensity. These dimensions included the velocity of technological transformation, the alacrity of shifts in consumer preferences, the tempo at which consumer needs mutate, and the swiftness with which competitors usher in novel products and services (Yu, 2013). This comprehensive approach articulates the multifaceted nature of environmental dynamics, highlighting their nuanced facets.

Feng Changli et al. (2015) advanced a nuanced perspective by categorizing environmental dynamics into a triumvirate of dimensions. These dimensions encompassed the overarching market volatility, the rapidity of technological evolution, and the velocity at which demands metamorphose (Feng, Zhang, Liu, Zhang, & He,

2015). This framework further underscores the intricate interplay of forces that orchestrate the symphony of environmental dynamics.

In essence, the dimensions of environmental dynamics serve as a prism, refracting the multifaceted and ever-evolving nature of the entrepreneurial landscape. They illuminate the path for scholars and practitioners alike, beckoning them to navigate the intricate tapestry of environmental dynamics.

The scholarly exploration of environmental dynamics has predominantly gravitated towards dimensions encapsulating technology, market dynamics, and the ebbs and flows of consumer demand (Zahra & Bogner, 2000). They implore researchers not to overlook facets tied to the burgeoning landscape of opportunities.

In a parallel vein, Wang Bo's (2019) research advances a dualistic perspective on environmental dynamics. Within this framework, environmental dynamics are stratified into the internal and external realms of a firm. This nuanced perspective contemplates not only the foundational elements but also the growth and developmental aspects in relation to opportunities (Wang, 2019). The internal environment of a company encapsulates the fluid and ever-evolving landscape of factors and circumstances within the organization. These internal variables wield considerable influence over the organization's day-to-day operations, management strategies, and overarching vision. Conversely, the external environment encompasses the dynamic milieu of extraneous factors enveloping the organization. This external ecosystem spans markets, competitive forces, regulatory frameworks, societal trends, technological advancements, and economic landscapes. These external factors wield significant sway over the organization's operational dynamics, strategic initiatives, and long-term trajectory. Consequently, this study posits a bifurcation of environmental dynamics into two dimensions: the internal and external environments of the firm.

When contemplating the measurement of environmental dynamics, a comprehensive evaluation can be distilled into four cardinal facets: shifts in customer preferences, the competitive landscape within the industry, technological innovations within the firm's purview, and the developmental status of the firm (Chen, 2018; Wang, 2019).

In summation, the study charts a multifaceted course through the intricate terrain of environmental dynamics. Beyond the conventional dimensions, it underscores the need for a comprehensive understanding that encompasses both foundational elements and the burgeoning landscape of opportunities. The dimension of environmental dynamics is categorized into the intrapreneurial environment and external environment of the firm. These dimensions are defined as follows:

Intrapreneurial Environment: The dynamic essence of the intrapreneurial environment alludes to the continuous evolution of factors and circumstances within a firm. These internal variables can wield considerable influence over a firm's operations, management, and strategic direction (Wang, 2019).

External Environment: The ever-changing and evolving nature of external factors and circumstances that envelop a firm. These external facets encompass markets, competitive landscapes, regulatory frameworks, societal trends, technological progress, and economic conditions, all of which can significantly impact a firm's operational landscape, strategic trajectory, and long-term growth prospects (Wang, 2019).

2.5.3 The Moderating Role of Environmental Dynamics

Environmental factors play a pivotal role in shaping the landscape of entrepreneurial research. The entrepreneurial arena is inherently dynamic, marked by ever-evolving conditions. As this dynamic environment undergoes continual transformations, enterprises exhibit a remarkable capacity for adaptation. In the realm of investigating environmental dynamics, it has been harnessed both as an autonomous variable and as a control and moderating factor, as demonstrated in the seminal work by Li (Li, 2001). Nonetheless, within the realm of studies probing the nexus between environmental dynamics and firm performance, the prevailing focus predominantly centers on its role as a moderating variable.

Suk Bong Choi and his colleagues in 2020 delve into the effects of entrepreneurial orientation on firm performance in relation to the moderating effects of firms' resource coordination capabilities and environmental dynamics. They maximized the complex and dynamic conditions of the effect of entrepreneurial orientation on firm performance by surveying 301 Korean manufacturing and service firms and designing a three-way interaction model. They found a positive relationship between entrepreneurial

orientation and firm performance. In addition, their results suggest that both the ability to coordinate firm resources and environmental dynamics play positive moderating roles in the above relationship. At high levels of environmental dynamics, entrepreneurial orientation is more positively related to firm performance in firms with high resource coordination capabilities. The entrepreneurial orientation of firms with high environmental dynamics is more positively related to firm performance at low levels of resource orchestration capabilities (Choi, Lee, & Kang, 2020).

Samuel Adomako et al, (2016) constructed Entrepreneurial Orientation, Passion for Work, Perceived Environmental Dynamics, and Firm Performance models. Through a survey of 250 SMEs from Ghana, we examined entrepreneurial orientation, passion for work, perceived environmental dynamics, and firm performance in an emerging economy. The study's empirical findings indicate that passion for work strengthens the entrepreneurial orientation-performance relationship in dynamic market environments. The paper has a strong theoretical value because, to the best of the authors' knowledge, this study is the first to examine the moderating role of passion for work on the relationship between entrepreneurial orientation and firm performance in dynamic environments (Adomako, Howard Quartey, & Narteh, 2016).

Su Daoming and co-authors, in their 2017 exploration, deftly harnessed environmental dynamics as a moderating variable to scrutinize the intricate relationship between knowledge-seeking behaviors and innovation performance (Su, Wu, & Liu, 2017). Their findings underscored the profound nexus between environmental conditions and the potency of knowledge-seeking endeavors, demonstrating that the effect of knowledge search on innovation performance is magnified within environments characterized by pronounced volatility.

Wu Wenqing et al. (2020) study analyzes the relationship between business incubators (BIs) networks and start-up performance. It proposes an integrated model to determine the impact of business incubators' internal and external networks on start-up performance through entrepreneurial orientation and environmental dynamics. It was found that both internal and external networks of BIs positively influence start-up performance, while entrepreneurial orientation has a mediating effect in this relationship. Environmental dynamics play a positive moderating role in the relationship between

firms' internal and external networks and entrepreneurial orientation (Wu, Wang, & Tsai, 2020).

Lastly, Mohammad H. Arasti and associates (2006) undertook a comprehensive study to probe the relationship between corporate entrepreneurial activities and business performance within the realm of SMEs, employing environmental dynamics as a moderating variable. Their discerning findings furnished valuable insights, indicating that corporate entrepreneurship emerges as a more potent driver of performance enhancement within swiftly changing market landscapes (Ensley, Pearce, & Hmieleski, 2006).

However, it is important to note that the moderating effect of environmental dynamics can yield varying impacts on different aspects of firm behavior and performance, as evidenced by several studies. For instance, Senyard Julianne and her research team (2015) examined the impact of bricolage on firm performance and tested the moderating role of environmental dynamics on the relationship between bricolage and firm performance using a sample of 390 nascent firms and 325 young firms in Australia. The moderating effect that environmental dynamics may have on the relationship between bricolage and firm performance. The results suggest that bricolage can be considered a tool of persistence in nascent firms and has a significant positive effect on young firm performance. The study also provides evidence, contrary to theorizing that environmental dynamics negatively impact the bricolage-performance relationship in young firms (Senyard, Davidsson, & Steffens, 2015).

Antonio Rodríguez Peña (2023), in his study of the relationship between corporate entrepreneurship and the performance of large firms in emerging markets, using environmental dynamics as a moderating variable, shows that entrepreneurial orientation has a strong positive effect on predictability, while corporate venture capital has a strong but negative effect on predictability; the effect of entrepreneurial orientation on firm growth is positive but statistically insignificant; and corporate venture capital has a strong negative but statistically insignificant effect on firm growth. Interestingly, environmental dynamics have no moderating effect in this case (Rodríguez-Peña, 2023).

Contrastingly, Guo Aifang et al (2013). explored the influence of both scientific and experiential learning on entrepreneurial performance. Their research findings

indicated that environmental dynamics do not necessarily exert a positive moderating influence (Guo & Chen, 2013).

In summary, it is crucial to recognize that the moderating effect of environmental dynamics is not uniformly facilitative. Its impact can vary based on the specific study and contextual factors. Therefore, there is a pressing need for further disaggregation and refinement in the study of dynamics. Additionally, differentiated research approaches are essential to provide a clearer and more definitive examination of the variable relationships within the diverse characteristics of environmental dynamics.

2.6 Entrepreneurial Performance

2.6.1 Definition of Entrepreneurial Performance

In a general context, entrepreneurial performance serves as a comprehensive measure of a firm's achievements across various dimensions and stands as a fundamental yardstick for evaluating the healthy and rapid growth of a company (Li & Atuahene-Gima, 2001). Entrepreneurial performance is a multifaceted and intricate concept that can vary in its definition depending on the perspective of different experts, making it a formidable challenge to precisely characterize. In a narrow sense, performance refers to the degree to which a firm attains its predetermined objectives and fulfills its responsibilities within a specified timeframe. This narrower definition primarily focuses on financial and operational indicators, where financial metrics encompass parameters like revenue and profit, while operational indicators relate to productivity and cost management. Such a restricted performance definition is geared towards quantifying and assessing an organization's economic outcomes in the short term (Ittner, Larcker, & Meyer, 2003). In a broader context, performance extends to the optimization and enhancement of a society's productive resources for maximal output (Carree & Thurik, 1996). Currently, there exists no global consensus among experts regarding the definition and scope of entrepreneurial performance. Definitions and performance metrics vary based on distinct research perspectives and research objectives.

For instance, Drucker & Maciariello (2014), a renowned scholar and management consultant in the field of management, defines entrepreneurial performance as the attainment of business objectives and outcomes, emphasizing a company's focus

on key indicators like market demand, profitability, and customer satisfaction (Drucker & Maciariello, 2014). In the field of entrepreneurship, Sarasvathy (2001) emphasizes the decision-making process and actions associated with entrepreneurial performance. She views entrepreneurial performance as the caliber and effectiveness of decisions made by entrepreneurs amidst uncertainty (Sarasvathy, 2001). On an international scale, Hisrich, Peters, & Shepherd (1998), distinguished entrepreneurship scholars, underscore the competencies and attributes of entrepreneurs throughout the process of business creation and operation (Hisrich, Peters, & Shepherd, 1998). This paper sorts out the definitions or connotations of entrepreneurial performance from different theoretical perspectives, as detailed in Table 2.4.

Table 2.6 Definition and Connotation of Entrepreneurial Performance

Perspective	Author	Definition
Organizational Theory	Miller, 1983	Entrepreneurial performance is the efficiency and effectiveness of a company's internal operations, including the flexibility of its organizational structure, the effectiveness of its leadership, and the collaborative nature of its teams.
Strategic Theory	Porter, 1980	Business results and competitive advantages achieved by the company in the marketplace, including growth rates, market share, and degree of differentiation from competitors.
Resource Dependence Theory	Pfeffer & Salancik, 2003	Business performance is influenced by external resources. Firms must establish cooperative relationships with various stakeholders in the external environment to obtain necessary resources, including capital, technology, etc.
Process Theory	Gartner, 1988	Entrepreneurial performance is viewed as the impact of different stages and actions in the entrepreneurial process on the development of the firm. Emphasizes the impact of the firm's strategic choices, resource integration, and learning capabilities on performance during the entrepreneurial process.

Table 2.7 Definition and Connotation of Entrepreneurial Performance (Cont.)

Perspective	Author	Definition
Social Cognitive Theory	Shepherd & DeTienne, 2005	Social cognitive theory focuses on the impact of a firm's cognitive structure and information processing on performance. This theoretical perspective suggests that the degree of a firm's knowledge of the market, technology, and competitive environment, among others, is closely related to performance.
Stakeholder Theory	Brouthers & Nakos, 2004	The theory emphasizes the extent to which firms respond to and satisfy their stakeholders, including all of the firm's stakeholders.
Entrepreneurial Ecosystem Theory	Spigel & Harrison, 2018	The ecosystem refers to government policies, the competitive landscape, industry rules, etc. The theory suggests that a firm's performance requires a comprehensive view of an interconnected ecosystem that is influenced by the interaction between the firm and the external environment.

Note. Author's compilation

Furthermore, various scholars have undertaken the evaluation of entrepreneurial performance, discerning its effectiveness across different stages of the entrepreneurial journey. In the initial phases of entrepreneurship, entrepreneurial performance typically centers on the viability of the firm and the validation of its presence in the market (Chandler & Hanks, 1994; Siegel, Siegel, & Macmillan, 1993). As the entrepreneurial venture progresses into the growth stage, the focal point of entrepreneurial performance may pivot towards expansion and the augmentation of the firm. During this phase, entrepreneurs must direct their attention towards critical indicators such as the firm's market share, sales growth, customer satisfaction, and operational efficiency (Venkataraman, 1997). Subsequently, as the firm matures, the definition of entrepreneurial performance may increasingly revolve around factors such as profitability, the stabilization of market share, and the perpetuation of innovation. Entrepreneurs and managers are challenged to sustain the firm's competitive advantage, identify fresh growth opportunities, and ensure the firm maintains its prominent market position (Miller & Friesen, 1983).

Moreover, the conceptualization and emphasis of entrepreneurial performance can diverge according to firm size. In the context of small firms, entrepreneurial performance may be predominantly concerned with survival and the maintenance of stable operations (Stam & Wennberg, 2009). Conversely, for medium-sized firms, entrepreneurial performance may underscore growth and the acquisition of market share (Wiklund & Shepherd, 2003). In the case of large firms, the delineation of entrepreneurial performance may place a stronger emphasis on competitiveness and innovation (George & Bock, 2011).

To encapsulate, entrepreneurial performance serves as a comprehensive yardstick that evaluates the proficiency and efficacy of entrepreneurial ventures throughout the entrepreneurial journey. Its scope encompasses a multitude of dimensions, encompassing financial performance, innovation prowess, market effectiveness, and societal impact. These facets interplay to define the success and value of an entrepreneurial endeavor. Entrepreneurs and business leaders should holistically consider these performance indicators when formulating strategies and decisions to propel the sustainable growth and prosperity of their enterprises.

2.6.2 Dimensions of Entrepreneurial Performance

According to expert studies, there are some differences in the division of dimensions of entrepreneurial performance, but most of the studies regard entrepreneurial performance as a multidimensional concept and analyze entrepreneurial performance in depth from a multidimensional perspective. This paper combed scholars to carry out research from multiple dimensions, which is organized as Table 2.5

Table 2.8 Dimension of Entrepreneurial Performance

Number	Author	Subject	Dimension
1	Liden, Stilwell, & Ferris, 1996	Age of subordinates and supervisors in large companies	Subjective performance, objective performance
	(Gruen, Osmonbekov, & Czaplewski, 2006)	General business	Financial performance, non-financial performance
	(Vickery, 1991)	General Businesses	
	Coombes, Morris, Allen, & Webb, 2011	Non-profit Board of Directors	Technological innovation, growth performance
	Shi, 2018	Startups	Survival performance, success performance
	Tang, 2016	Startups	Financial performance, growth performance
2	Hmieleski & Baron, 2008	Startups	Increased sales revenue and employee growth
	Batjargal, 2003	Small and Medium-sized Enterprises, Migrant Worker Entrepreneurship	Return on Investment, Sales Growth, Net Profit
	Murphy, 2004	International start-ups	Financial, Operational and Multi-Component Indicators
	Luo, 2022	University Student Entrepreneurship	Financial Performance, Growth Performance, Innovation Performance
	Su, 2022	Separated Entrepreneurship	Market Share, Market Profit, Business Scope
	Zhang, 2021	Small and Medium-sized Enterprises, Migrant Worker Entrepreneurship	Room for Growth, Corporate Profitability, Survival Rate
	Kai, 2020	International start-ups	Market share, change in cash flow, sales growth
	Zhong, 2012	Startups	Total Assets Growth Rate, Employee Number Growth Rate, Technology Development Progress
	Bosma, Van Praag, Thurik, & De Wit, 2004	Startups	Survival performance, profit performance and job creation performance

Table 2.9 Dimension of Entrepreneurial Performance

Number	Author	Subject	Dimension
	Cao, 2011	Startups	Survival performance, growth performance, reputation performance
3	Sebikari, 2019	Small and Medium-sized Enterprises	Market share, sales, profitability, return on investment
	Wen, 2023	Returning Farmers' Entrepreneurship	Financial performance, growth performance, customer satisfaction, operational management
	Zhu, 2023	Migrant Worker Entrepreneurship	Financial Performance, Growth Performance, Operations Management, Goal Achievement
4	Huang, 2023	Migrant Worker Entrepreneurship	Sales Growth, ROI, Product Quality, Market Recognition, Employee Wages and Benefits
5	Li, 2022	Migrant Workers Follow-up Entrepreneurship	Financial Performance, Growth Performance, Customer Satisfaction, Operations Management, Goal Achievement, Investment Scale
6	Luo, Peng, & Zeng, 2021	Small and Medium-sized Enterprises	Net Profit, Personal Attributes, Total Revenue, Product Innovation, Technological Innovation, Service Innovation, Cultural Innovation
7	Fodor & Pintea, 2017	General Enterprises	Sales, Number of Employees, Consumer Satisfaction, Employee Satisfaction, Product Innovation, Cultural Innovation, Technological Innovation, Personal Achievement

Note. Author's compilation

As depicted in the table, it becomes evident that there is no universally accepted standard for delineating the dimensions of business performance among experts. Different experts adopt varying sets of indicators to define these dimensions, contingent on the specific focus of their research inquiries. The outcomes of experts' dimension selection unmistakably demonstrate that the dimensions of entrepreneurial performance can be categorized into three principal groups, each reflecting distinct perspectives:

The first category encompasses financial and non-financial indicators. Financial indicators zero in on the profitability, financial robustness, and economic efficiency of the enterprise, serving as benchmarks for evaluating the financial health and economic efficacy of entrepreneurial ventures. These indicators typically encompass metrics such as profit margins, sales figures, and return on investment. Conversely, non-financial indicators direct their attention towards innovation capacity, market share, customer satisfaction, employee contentment, and other facets, offering measurements of the enterprise's performance in realms beyond mere financial outcomes.

The second category encompasses subjective and objective indicators. Subjective performance evaluations typically derive from individuals' personal perceptions, sentiments, and experiences. They gauge the enterprise's performance based on subjective appraisals and emotional responses, encompassing measures such as customer satisfaction and employee morale. In contrast, objective performance assessments rely on concrete data and factual evidence to gauge the startup's performance. This typically includes aspects such as financial performance, market share, sales growth rates, and product innovation metrics.

The third category encompasses survival performance and growth performance. Survival performance gauges whether a company can endure within the competitive market environment, laying the groundwork for future expansion. This category usually centers on metrics like survival duration, break-even points, and the stability of cash flow. In contrast, growth performance serves as a pivotal performance indicator for entrepreneurial enterprises, assessing their capacity to leverage inherent strengths and seize opportunities to achieve scale and market enlargement. This dimension often focuses on metrics such as sales growth rates, market share expansion, and the rate of new product introductions.

Simultaneously, it is noteworthy that certain experts incorporate aspects like social responsibility as metrics for assessing corporate performance within their research endeavors on business performance.

In the context of this study, where the research population is university students, entrepreneurial performance encompasses the critical role of individual entrepreneurs in contributing to the survival and growth of startups. It specifically denotes the extent to which entrepreneurs successfully complete specific tasks or achieve predetermined goals throughout the entrepreneurial process. This performance is reflected in various aspects, including increased personal income, improved quality of life, and increased social status. Related to this study, entrepreneurial performance consists of two main dimensions: financial performance and growth performance (Su et al., 2016). These dimensions are defined as follows:

Financial Performance: Within the purview of this study, financial performance pertains to the economic and financial accomplishments of entrepreneurs. Typically gauged by an array of financial metrics and indicators, such as personal income and the enhancement of one's quality of life. The assessment of personal financial performance serves as a means to comprehend the fiscal and economic standing of entrepreneurs, as well as the influence of entrepreneurial undertakings on their financial well-being (Su et al., 2016; Wang, 2020).

Growth Performance: In the framework of this study, growth performance alludes to the professional and personal development and advancement of entrepreneurs. This evaluation encompasses facets such as the trajectory of an entrepreneur's personal career and the manifestation of their life values. The examination of personal growth performance aids in elucidating the repercussions of entrepreneurial activities on the entrepreneur's individual development, along with the career progression paths of entrepreneurs across various stages (Su et al., 2016; Wang, 2020).

2.6.3 Current State of Research on Entrepreneurial Performance

Upon an exhaustive review of existing research, it becomes evident that scholars commonly examine the entrepreneurial performance of firms as an outcome variable. Their primary focus lies in elucidating the factors that exert an influence on the

entrepreneurial performance of these firms. Below, we provide a synthesis of key studies in this domain:

Sun Jialu et al. (2016) conducted an investigation into the correlation between the entrepreneurial environment, market-oriented strategy, and entrepreneurial performance within 176 large automotive enterprises in China. Their findings underscored a positive correlation between market-oriented strategy and firm performance (Sun, Yao, Zhang, Chen, & Liu, 2016). Importantly, the study revealed that the impact of market-oriented strategies on firm performance intensifies in environments marked by heightened uncertainty.

Jose Carlos Pinho et al. (2014) explored the impact of personal and relational factors on the performance of new ventures. They administered questionnaires to startups representing various industries established within the past four to five years. Their contention is that entrepreneurial performance results from a blend of individual and contextual factors and cannot be attributed solely to individual entrepreneurial traits or institutional relationships (Carlos Pinho & Sampaio de Sá, 2014).

Sebikari (2019) conducted an extensive study involving approximately 2000 interviews with entrepreneurs in Uganda to investigate strategies for enhancing the performance of small businesses. The study conclusively demonstrated that entrepreneurial capital, entrepreneurial knowledge, and entrepreneurial competencies wield a significant influence on entrepreneurial performance (Sebikari, 2019).

Itot Bian Raharjo and colleagues (2023) employed a qualitative research approach to explore the intricate relationship between entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial performance. Their findings underscored the interplay between entrepreneurship education and self-efficacy, highlighting their pivotal role in fostering robust entrepreneurial performance (Raharjo et al., 2023).

Coombes et al. (2011) delved into the impact of nonprofit boards of directors as a strategic resource in shaping an organization's entrepreneurial orientation and performance. Their results suggested that specific behavioral orientations significantly influence the level of entrepreneurship within nonprofit organizations. While higher

levels of entrepreneurship influence social performance, they do not necessarily correlate with financial performance (Coombes et al., 2011).

Luo Yu et al. (2021) drew the conclusion that digital financial capability (DFC) exerts a substantial positive influence on business ownership, business innovation, and financial performance (Luo et al., 2021).

Ma et al. (2022) highlighted a positive correlation between entrepreneurial emotions and entrepreneurial performance. They also observed that state negative emotions, but not non-trait negative emotions, are significantly negatively related to entrepreneurial performance (Ma, Zhang, Butler, Guo, & Bozward, 2022). Individual characteristics like gender, age, and education have a significant impact on these associations, with female, younger, and less educated entrepreneurs showing more pronounced relationships between emotions and entrepreneurial performance.

Arooj Zeb (2020) explored the impact of entrepreneurship and innovation on the entrepreneurial performance of women-owned SMEs in Pakistan, with innovation acting as a mediator between the two (Zeb & Ihsan, 2020).

Ashwini Kadam and Shalaka Ayarekar (2014) conducted a study on the impact of social media on entrepreneurship and the entrepreneurial performance of SMEs. Their findings indicated that social media plays a pivotal role in areas such as brand awareness, trust development, sales, customer engagement, purchase decision influence, profitability, social accountability, benchmarking, and quality management—all of which substantially contribute to improving entrepreneurial performance (Kadam & Ayarekar, 2014). Ma Hongyu et al. (2022) assessed the influence of social and psychological capital on the entrepreneurial performance of a new generation of migrant worker entrepreneurs in China. Their research revealed that both social and psychological capital exerted a significant positive impact on the entrepreneurial performance of migrant worker entrepreneurs, with a positive correlation observed (Ma et al., 2022).

These studies collectively shed light on the multifaceted nature of entrepreneurial performance and the diverse array of factors that impinge upon it, providing valuable insights for entrepreneurs and business practitioners alike.

In conclusion, the academic landscape presents varying perspectives concerning the research focus and definition of entrepreneurial performance. Against the backdrop

of China's economic transformation, college students venturing into entrepreneurship encounter challenges related to organizational deficiencies during growth, susceptibility to environmental fluctuations, and more. It is of paramount importance for college student entrepreneurs to bolster their entrepreneurial acumen through entrepreneurship education, acquire the requisite knowledge and information essential for entrepreneurship, and enhance their problem-solving capabilities in the entrepreneurial journey. As a result, this study, built upon a comprehensive review of literature pertaining to the impact on of entrepreneurship entrepreneurial performance, will center its investigation on elucidating the influence of entrepreneurship education, entrepreneurial awareness, entrepreneurial skills, and environmental dynamics on the performance of startups.

2.7 Related Research and Hypothesis Development

2.7.1 Impact of Entrepreneurship Education on Entrepreneurial Performance

Entrepreneurship education encompasses four distinct dimensions: theoretical education, practical education, entrepreneurship competitions, and entrepreneurship lectures. In parallel, entrepreneurial performance is evaluated across two key dimensions: growth performance and profitability performance.

Primarily, entrepreneurship education equips entrepreneurs with essential knowledge and entrepreneurial skills, thereby enhancing their proficiency and readiness for the entrepreneurial journey. This educational approach also imparts valuable professional knowledge, equipping entrepreneurs with enhanced foresight capabilities in navigating the intricacies of entrepreneurship (Shi, 2018).

Additionally, research has revealed a positive correlation between the extent of entrepreneurial practice opportunities and the quality of entrepreneurship education and improved entrepreneurial performance among college students (Chen & Shuai, 2023). Educational institutions employ various strategies to establish entrepreneurship platforms, thereby providing enhanced resources and support for aspiring college entrepreneurs. These initiatives, including entrepreneurship lectures and entrepreneurship competitions, provide students with insights from industry professionals, facilitating

more effective learning. Participation in entrepreneurship competitions further fosters the development of innovative thinking among college students.

In light of the above, this study presents Research Model 1, as shown in Figure 2.5.

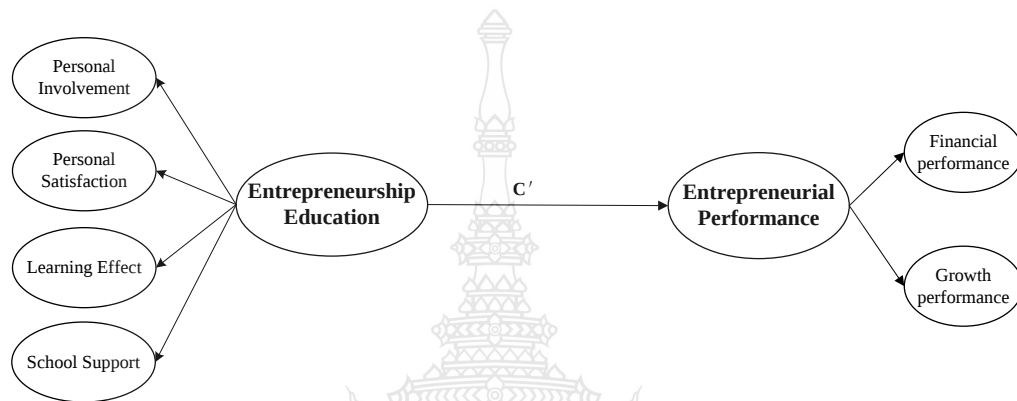


Figure 2.5 The Research Model 1

Consequently, this study posits the following hypothesis:

H1: Entrepreneurship education has a positive impact on entrepreneurial performance.

This hypothesis emphasizes the crucial role that entrepreneurship education plays in improving college students' entrepreneurial performance by highlighting its multifaceted effects on both knowledge acquisition and the development of practical skills.

2.7.2 The Impacts of Entrepreneurial Education are Transmitted from Entrepreneurial Intention to Entrepreneurial Performance; However, this May Differ Based on Environmental Dynamics

Entrepreneurial intention delineates the degree of an entrepreneur's eagerness to embark on entrepreneurial endeavors and the level of commitment they are willing to invest in these pursuits (Ajzen, 2005). It encapsulates an individual's beliefs and aspirations regarding their capacity to undertake entrepreneurial actions and engage in

various entrepreneurial activities. Entrepreneurial intention encompasses three core dimensions: perceived Desirability, perceived feasibility, and propensity to act.

In the journey toward becoming an entrepreneur, cultivating entrepreneurial intention stands as the initial imperative. Research underscores that participation in theoretical entrepreneurship education within educational institutions not only facilitates the acquisition of knowledge and skills but also aids students in discerning their own needs and charting future developmental trajectories. This is achieved through rigorous engagement in learning, critical thinking, and vibrant discourse within a robust entrepreneurial learning environment. Furthermore, various forms of practical education and associated entrepreneurial activities, such as case discussions, role-playing, and entrepreneurial competitions, equip students with practical entrepreneurial experience, foster business acumen, and nurture entrepreneurial thinking. These experiences influence students' attitudes toward entrepreneurship, thereby bolstering their entrepreneurial intentions (Li, 2014).

Entrepreneurial intention encompasses various dimensions, including self-efficacy, hope, confidence, resilience, and optimism. An individual must harbor entrepreneurial intention before translating it into entrepreneurial actions, and the more pronounced this intention, the higher the likelihood of implementation. Drawing from the Theory of Planned Behavior and Social Cognitive Theory, intention significantly influences an individual's future behaviors and propels their efforts toward achieving internal objectives. Among the myriad factors at play, entrepreneurial efficacy emerges as a pivotal variable impacting entrepreneurial intention, boasting robust predictive validity (Ju, 2022). A person's strong belief in their entrepreneurial abilities frequently serves as the foundation for their pursuit of entrepreneurship.

According to Social Cognitive Theory, performance outcomes result from the interplay between self-efficacy and outcome expectations. Notably, entrepreneurial self-efficacy yields a substantial positive impact on startup performance (Zhong & Huang, 2012).

The entrepreneurial landscape confronting startups undergoes continual transformations in response to economic and societal shifts. These dynamically shifting elements within the environment encompass a spectrum of factors, including customer

behaviors, like-minded competitors, technological advancements, regulatory frameworks, and the entirety of the entrepreneurial process (Huang, 2010). Within a rapidly evolving environment, the influence of dynamics manifests in two key aspects: first, it introduces specific challenges to enterprises, and second, it unveils potential opportunities. A highly dynamic market milieu serves as a catalyst, spurring entrepreneurs to actively seek out innovation and entrepreneurial prospects. Entrepreneurs leverage opportunity identification to create pathways for startups, thereby fueling their entrepreneurial intentions (Zhang, Qi, & Li, 2017).

Entrepreneurs who possess the acumen to discern business opportunities within the market realm are poised to cultivate and expand their enterprises (Miller & Friesen, 1983). Startups' entrepreneurs further introduce new business prospects atop this foundation (Wang, 2019).

In light of the above, this study presents Research Model 2, as shown in Figure 2.6.

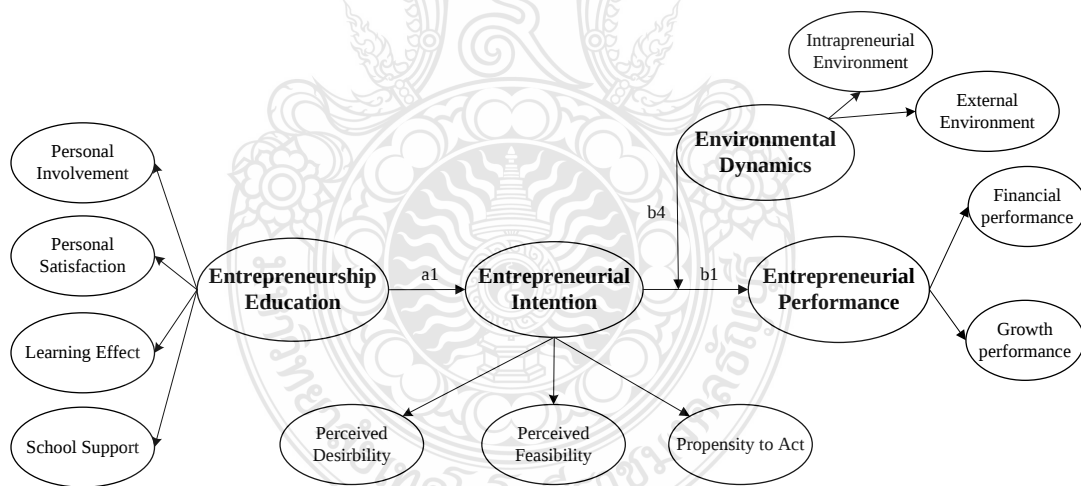


Figure 2.6 The Research Model 2

Based on Model 2, this study proposes the following hypotheses:

H2: The indirect effects of entrepreneurial education on entrepreneurial performance through entrepreneurial intention were changed subject to varying levels of environmental dynamics.

H2a: Entrepreneurial intention mediates the effects of entrepreneurship education on entrepreneurial performance.

(Note: Effect = $a_1 \cdot (b_1 + b_4 \cdot ED)$, so when $ED = 0$, the Effect = $a_1 \cdot b_1$)

2.7.3 The Impacts of Entrepreneurial Education are Transmitted from Entrepreneurial Capability to Entrepreneurial Performance, However, This May Differ Based on Environmental Dynamics

This study defines entrepreneurial capability as the aptitude of college students to engage in entrepreneurial activities, encompassing both their entrepreneurial capability during their academic tenure and their capability to participate in entrepreneurial endeavors 1-5 years after graduation (Yang, 2023). These capabilities manifest across four fundamental dimensions: technology development ability (innovation), management proficiency, leadership acumen, and team-building capability.

A plethora of research endeavors have consistently demonstrated that entrepreneurship education plays a pivotal role in enhancing individual entrepreneurial competencies. Grounded in the premise that entrepreneurship is a teachable discipline, entrepreneurship education serves as a conduit for imparting and nurturing entrepreneurial capability among aspiring entrepreneurs. This educational approach equips individuals with the capability set required to confront challenges, surmount obstacles, sharpen problem-solving acumen, and fortify their business knowledge base (Thanasi-Boçe, 2020).

Within the realm of startups, entrepreneurs wield direct influence and control over entrepreneurial activities, and these business undertakings often reflect the entrepreneur's personal vision and determination. Notably, entrepreneurial capability plays a pivotal role in enabling firms to maintain sustainable competitive advantages. From the entrepreneur's perspective, it becomes imperative to enhance their ability to identify and seize opportunities, institute effective management mechanisms, foster team cohesion, provide guidance to align the team's efforts with the enterprise's objectives, and ensure the continuous and robust development of the organization.

Simultaneously, throughout the entrepreneurial journey, entrepreneurs engage in a continual process of identifying and integrating resources while seeking out and capitalizing on opportunities. This heightened ability to discern and seize opportunities

not only augments the enterprise's resource pool but also contributes to enhanced firm performance. Numerous studies have consistently revealed a positive correlation between entrepreneurial prowess and firm performance (Luo, 2009).

Entrepreneurial capabilities play a pivotal role in enabling firms to navigate the complexities of dynamic environments, ultimately contributing to enhanced performance (Peteraf & Barney, 2003). Within rapidly changing and evolving market landscapes, entrepreneurs must exhibit heightened levels of adaptability, innovation, and transformative capabilities. Environmental dynamics serve as a potent motivator, compelling entrepreneurs to proactively craft new business models, products, or services. In environments characterized by high dynamics, entrepreneurs' capacity for innovation and transformation becomes increasingly pivotal, as they must continually adjust their strategies in response to market fluctuations (McMullen & Dimov, 2013).

Moreover, in environments marked by a high degree of environmental dynamics, entrepreneurs' management styles can be profoundly influenced. This influence, in turn, contributes to elevated levels of firm performance by bolstering entrepreneurial capabilities and facilitating a more holistic approach to decision-making (Garg, Walters, & Priem, 2003; Wang, 2019).

In light of the above, this study presents Research Model 3, as shown in Figure 2.7.

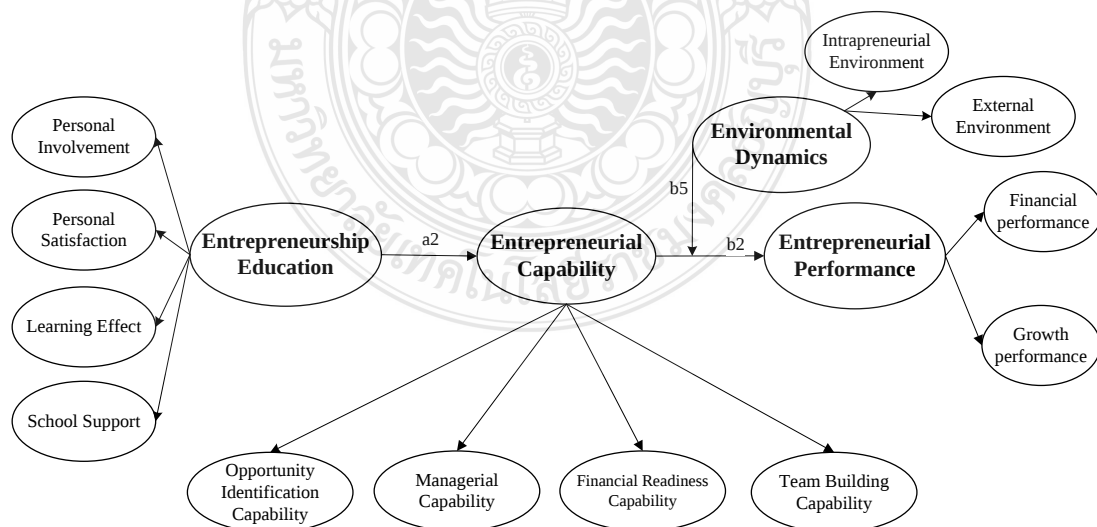


Figure 2.7 The Research Model 3

Based on Model 3, this study proposes the following hypotheses:

H3: The indirect effects of entrepreneurial education on entrepreneurial performance through entrepreneurial capability were changed to varying levels of environmental dynamics.

H3a: Entrepreneurial capability mediates the effects of entrepreneurship education on entrepreneurial performance.

(Note: Effect = $a_2 \cdot (b_2 + b_5 \cdot ED)$, so when $ED = 0$, the Effect = $a_2 \cdot b_2$)

2.8 Hypothesized Structural Model

In summary, based on the literature review, this paper presents the overall theoretical framework and research hypotheses diagram of the impact of entrepreneurship education on entrepreneurial performance, as shown in Figure 2.8.

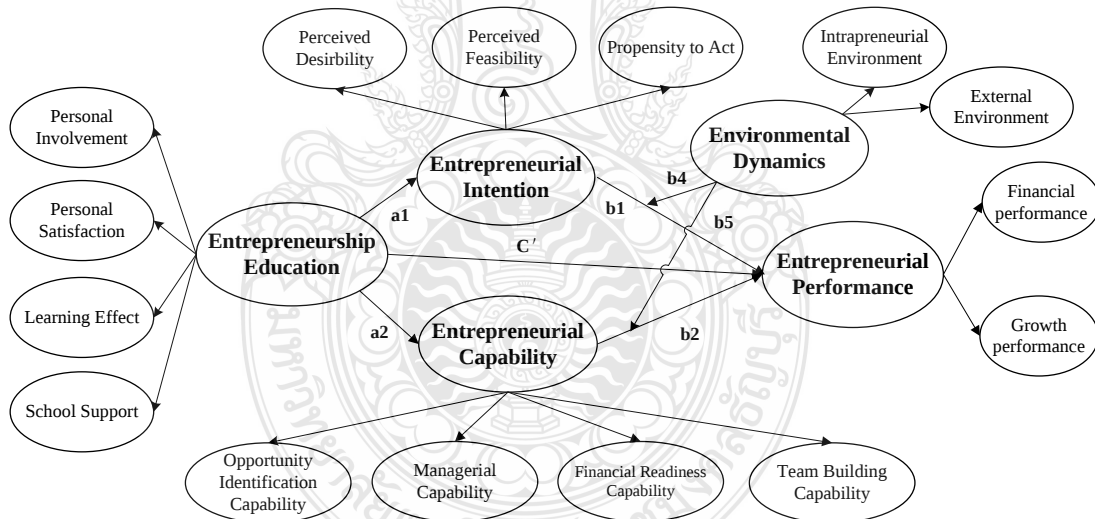


Figure 2.8 The Whole Conceptual Framework Model

H1: Entrepreneurship education has a positive impact on entrepreneurial performance.

H2: The indirect effects of entrepreneurial education on entrepreneurial performance through entrepreneurial intention were changed subject to varying levels of environmental dynamics.

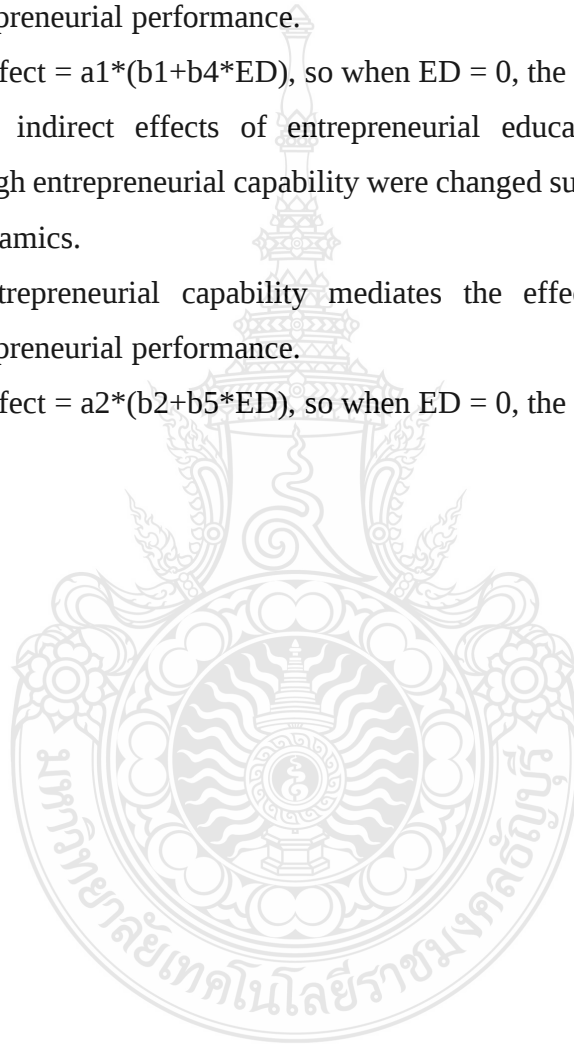
H2a: Entrepreneurial intention mediates the effects of entrepreneurship education on entrepreneurial performance.

(Note: Effect = $a_1 \cdot (b_1 + b_4 \cdot ED)$, so when $ED = 0$, the Effect = $a_1 \cdot b_1$)

H3: The indirect effects of entrepreneurial education on entrepreneurial performance through entrepreneurial capability were changed subject to varying levels of environmental dynamics.

H3a: Entrepreneurial capability mediates the effects of entrepreneurship education on entrepreneurial performance.

(Note: Effect = $a_2 \cdot (b_2 + b_5 \cdot ED)$, so when $ED = 0$, the Effect = $a_2 \cdot b_2$)



CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research design and methodology used to conduct the study. It includes sections on Research Design, Quantitative Research, Qualitative Research, and Ethical Issues. The research methods are elaborated in detail, covering the population and sampling, data collection, research instruments, and data analysis.

3.2 Research Design

The main aim of this study is to examine and clarify the impact of entrepreneurship education on entrepreneurial performance. This research utilizes a comprehensive analysis of existing literature to examine the complex relationship between entrepreneurship education and entrepreneurial performance. It combines theoretical analysis with empirical investigation and considers factors such as entrepreneurial capability, entrepreneurial intention, and environmental dynamics that may influence this relationship. This study aims to achieve the following objectives:

- (1) To examine the relationship between entrepreneurship education and entrepreneurial performance.
- (2) To explore the impact of entrepreneurship education on entrepreneurial performance through entrepreneurial intention and entrepreneurial capability, and compare the differences in their mediating effects.
- (3) To investigate the impact of entrepreneurship education on entrepreneurial performance through entrepreneurial intention and entrepreneurial capability under the varying conditions of the environmental dynamics.

Investigate the varying impacts of entrepreneurship education (EE), entrepreneurial intention (EI), and entrepreneurial capability (EC) on entrepreneurial performance (EP), considering the moderating role of environmental dynamics (ED).

In the field of management research, the selection of an appropriate research methodology for a particular research investigation is critical to maintaining the scientific rigor of the investigation. This study has been rigorously designed to maintain scientific

principles and precision. To achieve these goals, this study employs both qualitative and quantitative research methods to collect data through in-depth interviews and survey research as the cornerstone of informed decision-making. In addition, careful selection of appropriate data analysis methods and data analysis software are effective strategies to ensure the integrity of scientific decision-making (Xue, 2009).

The structure of this study unfolds as follows: the empirical analysis seeks to validate the research model posited in this paper. Given the unavailability of the requisite data from objective and open sources, data acquisition is facilitated solely through the utilization of questionnaires. The design of these questionnaires adheres to the research's thematic focus and objectives, ensuring the acquisition of precise data that faithfully reflects the research problem under scrutiny (Zhang & Tian, 2007). It is imperative that the questionnaire design yields scientifically robust results.

In this section, we delve into the foundational principles governing questionnaire design. We outline the rationale behind the questionnaire's construction, elucidating the stepwise process employed for questionnaire design within this study. We also provide insights into the distribution and retrieval of the questionnaires, maintaining the utmost transparency in research methodology.

1. Clarity of Purpose: The research's objectives and scope should be meticulously defined, with questionnaire content aligned cohesively with the study's thematic essence.

2. Respect for Privacy: The questionnaire design should prioritize the safeguarding of personal privacy, steering clear of intrusive inquiries.

3. Lucidity and Comprehensibility: Questionnaire items must be framed in a clear and understandable manner, eliminating potential sources of ambiguity for respondents.

4. Logical Arrangement: The arrangement of questionnaire items should follow a logical progression, aligning with respondents' reading and thought patterns. Questions should transition seamlessly from simplicity to complexity.

5. Optimal Length: The questionnaire should be balanced in length, avoiding being too long. It's designed to respect the respondents' time, and it should take about 10 minutes to complete.

Adherence to these tenets of questionnaire design is pivotal to ensuring the scientific robustness of data collection and, ultimately, the research's validity and reliability.

3.3 Quantitative Research

3.3.1 Population and Sampling

3.3.1.1 Population

In quantitative research, this research focuses on entrepreneurial students from four primary categories of higher education institutions in China. Based on data from the Ministry of Education of the People's Republic of China, as of December 29, 2022, the four categories of higher education institutions (HEIs) are: HEIs under central ministries and agencies (118 institutions), academic HEIs (1,124 institutions), professional HEIs (32 institutions), vocational HEIs (1,482 institutions), totaling 2,756 institutions.

The subjects of this study come from the above-mentioned four categories of HEIs. Quantitative data were collected via questionnaires, focusing on students actively involved in entrepreneurship and who had received entrepreneurship education. This stringent criterion ensures the inclusion of individuals with direct expertise in entrepreneurial activities. Scenarios in which entrepreneurs delegate managerial tasks to others were excluded from the study, as they fall outside its scope.

To be included in this study, the participants must be college students currently engaged in entrepreneurial activities and have received entrepreneurship education. This strict criterion ensures that our study covers individuals with firsthand experience in entrepreneurial endeavors. It excludes cases where entrepreneurs delegate managerial responsibilities to others, as such scenarios are considered beyond the scope of this research.

3.3.1.2 Sampling

In this study, the author designed 67 questions to investigate five variables. As a general guideline, the sample size should be 5 to 10 times the number of items in the questionnaire (Gorsuch, 1983). Therefore, the required sample size for this study ranges between 335 and 670 participants.

The study employed a 95% confidence interval, which indicates that within this interval, the sample is expected to accurately represent the population. To achieve this confidence level, based on the recommendation by Hair (2010), 15% of the population was selected as the sample (Hair, 2010). This approach ensures that the sample is sufficiently large to represent the population and minimize errors. According to the official website of the Ministry of Education of the People's Republic of China, as of December 31, 2022, the total number of higher education institutions in China was 2,756. Thus, the sample size was calculated as $2,756 * 0.15 \approx 413$.

To meet the minimum sample size requirement, the author employed a two-stage sampling method, this sampling process ensures balanced representation across all types of universities, supporting detailed and specific analyses. The procedure follows the stratified random sampling approach recommended by Lohr (Lohr, 2019). In the first stage, universities were selected proportionally from each type of higher education institutions. In the second stage, 5 entrepreneurial university students were surveyed from each of the universities selected in the first stage. Consequently, a total of $413/5 \approx 83$ universities were selected in the first stage, with the proportion of universities selected being approximately $83/2,756 \approx 3\%$, as detailed in Table 3.1. Ultimately, the total sample size consisted of 420 participants from various tiers of universities. If only 70% of the returned questionnaires are usable, the author intends to distribute 600 questionnaires to increase the sample size and enhance its representativeness.

Table 3.1 Number of Samples Collected from Each Type of Colleges or Universities

Type	Number of universities	Stage 1: Drawing of specific number of colleges and universities according to the 3% number	Stage 2: 5 questionnaires from each college and universities
HEIs under Central Ministries and Agencies	118	4	20
Academic HEIs	1124	34	170
Professional HEIs	32	1	5
Vocational HEIs	1482	45	225
Total	2756	84	420

Note: The data in the table comes from the official website of the Ministry of Education of the People's Republic of China. It shows the number of different higher education institutions.

3.3.2 Data Collection

The questionnaire for this study was distributed and collected through an online platform. The survey was distributed via WeChat to "Question Star." All questionnaires were completed through online self-assessment. After the collection of questionnaires, valid questionnaires were coded and input into a computer for homogeneity bias analysis. Invalid questionnaires with the same IP or ID were removed to avoid the influence of the common method variance.

3.3.3 Research Instruments

Within quantitative management research, the questionnaire survey method is a popular option that stands out for several reasons: Foremost, this method exhibits swiftness and efficiency in gathering data, making it a preferred option for researchers. Furthermore, it offers an advantageous characteristic where larger data samples tend to bolster data quality while concurrently upholding reliability and validity standards. The questionnaire method boasts a high level of operational ease, rendering it readily accessible and well-received by survey respondents. Importantly, this approach is a cost-effective means of collecting data, often making it a pragmatic choice for research endeavors.

Empirical research necessitates careful questionnaire design, typically drawing from two primary sources: The first avenue involves utilizing existing scales or revising established scales based on prior research outcomes. Employing mature scales carries the advantage of well-established reliability and validity. However, limitations may arise concerning factors such as temporal relevance, contextual appropriateness, national or cultural variations, and other distinctive elements. Alternatively, researchers may opt to design their own scales tailored to the research context. When crafting self-designed research scales, it is imperative to clarify the variables under scrutiny, elucidate their interrelationships, and articulate the structural framework these variables adhere to.

Table 3.2 Construct and Sub-construct

Codes	Variable and Factor
EE	Entrepreneurship Education
PI	Personal Involvement
PS	Personal Satisfaction
LE	Learning Effect
SS	School Support
EI	Entrepreneurial Intention
PD	Perceived Desirability
PF	Perceived Feasibility
PA	Propensity to Act
EC	Entrepreneurial Capability
OIC	Opportunity Identification Capability
MC	Managerial Capability
FRC	Financial Readiness Capability
TBC	Team Building Capability
ED	Environmental Dynamics
IE	Intrapreneurial Environment
ETE	External Environment
EP	Entrepreneurial Performance
FP	Financial performance
GP	Growth performance

Questionnaire: All survey items in this paper are investigated by a questionnaire, and the questionnaire for this study contains four main aspects: (1) Introduction to the questionnaire. (2) Basic personal information of the respondents. (3) Screening options. (4) The main content of the questionnaire. Utilized was a five-point Likert scale; the Likert scale ratings of 1, 2, 3, 4, and 5, respectively, correspond to "least agree", "less agree", "moderately agree", "more agree", "most agree", and respondents chose one of the five options as their answer. In this study, all 15 variable factors of the five variables had to appear in each questionnaire, as shown in Tables 3.3 to 3.18.

3.3.3.1 Personal Information

The personal information measure includes a wide range of variables that are needed for further statistical studies that aim to find out if there are differences in how different types of entrepreneurs affect their performance in the field of entrepreneurship education.

This personal information survey encompasses several crucial dimensions, including the respondent's gender, age, educational level, nature of the school, professional category, number of employees, and industry of the enterprise to which the business belongs.

Gender, a fundamental demographic attribute, is classified into two distinct categories: male and female. Age is primarily determined through the selection of predefined age ranges, ensuring systematic data collection. The educational level offers three options: specialized, undergraduate, and postgraduate qualifications. The nature of the attending institution provided respondents with four distinct categories, representing various types of colleges and universities. The professional category of specialization is comprised of five diverse areas thoughtfully selected by the respondents themselves, reflecting their unique academic focus. Respondents are required to select from five options regarding the number of employees in the company and five options regarding the industry to which the company belongs, based on actual circumstances.

This multifaceted personal information dataset serves as a vital resource for subsequent analytical inquiries into the impact of distinct entrepreneur categories on entrepreneurial performance in the domain of entrepreneurship education. For details, see table 3.3.

Table 3.3 Personal Information

Personal Information	Question
Gender	Male, Female
Age	18-22 years old ,23-27 years old ,28-35 years old
Education level	Specialized, Undergraduate, Postgraduate
Nature of university	HEIs under Central Ministries and Agencies, Academic HEIs, Professional HEIs, Vocational HEIs
Professional category	Engineering, Finance, Management, Education, Others
Number of employees	10 employees or less, 11-20 employees 21-50 employees, more than 50 employees,
Industry of enterprise	High-tech, Traditional Manufacturing, Finance, Construction/Real Estate, Trade/Services, Others

3.3.3.2 Entrepreneurship Education

1. Personal Involvement

Four items used to measure personal involvement (PI1-PI4) were adapted from the literature. These items have been used as measurement items for PI by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.4)

Table 3.4 Personal Involvement (PI)

Factor name	Questions	Authors
PI1	While in university, I frequently attend entrepreneurship education theory courses.	(Ning, 2017; Chen, 2023;
PI2	During my time at university, I frequently attend entrepreneurship seminars organized by the university.	Arranz, Ubierna,
PI3	While in university, I often participate in various types of entrepreneurial competitions.	Arroyabe, Perez, & Fdez. de Arroyabe,
PI4	While in university, I regularly train or practice simulations of entrepreneurial skills.	2017; Cui & Bell, 2022)

2. Personal Satisfaction

Four items used to measure personal satisfaction (PS1-PS4) were adapted from the literature. These items have been used as measurement items for PS by many

studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.5)

Table 3.5 Personal Satisfaction (PS)

Factor name	Questions	Authors
PS1	I am very satisfied with the theoretical courses related to entrepreneurship education.	(Li, 2014; Ning, 2017; Chen, 2023)
PS2	I am very satisfied with lectures or competitions on entrepreneurship.	
PS3	I am very satisfied with the practical courses related to entrepreneurship.	
PS4	I am very satisfied with the teachers who teach entrepreneurship education.	

3. Learning Effect

Three items used to measure the learning effect (LE1–LE5) were adapted from the literature. Incorporated with experts' ideas, the additional two items were developed and added with regard to: firstly, the entrepreneurship education program is a great way to improve your entrepreneurial capability; secondly, improvement of your psychological quality after learning through entrepreneurship education (LE4–LE5). This gives a total of five items used to operationalize LE (see Table 3.6).

Table 3.6 Learning Effect (LE)

Factor name	Questions	Authors
LE1	Entrepreneurship education enhances my spirit of innovation.	(Li, 2014; Piperopoulos & Dimov, 2015)
LE2	Entrepreneurship education programs enhance my awareness of entrepreneurial risks.	
LE3	I have a good grasp of basic business knowledge after learning through entrepreneurship education.	
LE4	The entrepreneurship education program is a great way to improve my entrepreneurial capability.	
LE5	My psychological quality has improved after learning through entrepreneurship education.	

4. School Support

Five items used to measure school support (SS1-SS5) were adapted from the literature. These items have been used as measurement items for SS by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.7)

Table 3.7 School Support (SS)

Factor name	Questions	Authors
SS1	My university has a well-established entrepreneurship center or mentoring organization.	(Li, 2014; Ning, 2017)
SS2	The university offers an entrepreneurship elective.	
SS3	My university has a good creative atmosphere.	
SS4	The university's teachers are passionate and committed to entrepreneurship education.	
SS5	University leaders place a high value on entrepreneurship education.	

3.3.3.3 Entrepreneurial Intention

1. Perceived Desirability

Four items used to measure the perceived desirability (PD1-PD4) were adapted from the literature. Incorporated with experts' ideas, the additional two items were developed and added with regard to: firstly, entrepreneurship can bring you great material rewards; secondly, entrepreneurship is a good way for you to develop and improve your skills (PD5-PD6). This gives a total of six items used to operationalize LE (see Table 3.8).

Table 3.8 Perceived Desirability (PD)

Factor name	Questions	Authors
PD1	I feel energized in an entrepreneurial work environment.	(Phan, Wong, & Wang, 2002; Liu, 2014; Ning, 2017; Liñán & Chen, 2009)
PD2	I became an entrepreneur because it makes me feel better about my life.	
PD3	I have the confidence to start a business.	
PD4	Entrepreneurship can bring me challenges.	
PD5	Entrepreneurship can bring me great material rewards.	
PD6	Entrepreneurship is a good way for me to develop and improve my skills.	

2. Perceived Feasibility

Five items used to measure perceived feasibility (PF1-PF5) were adapted from the literature. These items have been used as measurement items for PF by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged, and all the items remained unchanged (see Table 3.9)

Table 3.9 Perceived Feasibility (PF)

Factor name	Questions	Authors
PF1	I have told family or friends about my intention to start a business.	(Phan et al., 2002; Liu, 2014, Ning, 2017; Liñán & Chen, 2009)
PF2	I am starting a business because I want to do something new and different.	
PF3	I have taken the time to learn about entrepreneurship.	
PF4	I am very interested in starting a business.	
PF5	I believe that I can succeed in entrepreneurship by constantly pioneering and innovating.	

3. Propensity to Act

Four items used to measure propensity to act (PA1-PA4) were adapted from the literature. These items have been used as measurement items for PA by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.10)

Table 3.10 Propensity to Act (PA)

Factor name	Questions	Authors
PA1	I like to work in a job where I can organize my time freely.	(Phan et al., 2002; Liu, 2014, Ning, 2017; Liñán & Chen, 2009)
PA2	I am willing to take the risks associated with starting a business.	
PA3	I am starting a business because it gives me the opportunity to make a difference.	
PA4	I strive for entrepreneurial success.	

3.3.3.4 Entrepreneurial Capability

1. Opportunity Identification Capability

Three items used to measure opportunity identification capability (OIC1-OIC3) were adapted from the literature. These items have been used as measurement items for OIC by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.11)

Table 3.11 Opportunity Identification Capability (OIC)

Factor name	Questions	Authors
OIC1	I can identify potential market opportunities in industry sectors.	(Liu, 2022; Ning, 2017)
OIC2	I can accurately identify customer needs for products and services.	
OIC3	I am able to identify and discover business opportunities that can generate sustainable revenue.	

2. Managerial Capability

Four items used to measure managerial capability (MC1-MC4) were adapted from the literature. These items have been used as measurement items for MC by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.12).

Table 3.12 Managerial Capability (MC)

Factor name	Questions	Authors
MC1	I can effectively lead, motivate, and supervise employees.	(Chen, 2018; Okolie, Igwe, Ayoola, Nwosu, Kanu, & Mong, 2021; Yang, 2023)
MC2	I can rationalize the allocation of human, financial, and material resources within the organization.	
MC3	I can adjust the company's strategic goals and business ideas in a timely manner.	
MC4	I can effectively coordinate all tasks and various interests.	

3. Financial Readiness Capability

Three items used to measure the financial readiness capability (FRC1–FRC3) were adapted from the literature. Incorporated with experts' ideas, the additional two items were developed and added about: firstly, you can find partners with sufficient funding; secondly, you can get start-up capital through government grants (FRC4–FRC5). This gives a total of five items used to operationalize FRC (see Table 3.13).

Table 3.13 Financial Readiness Capability (FRC)

Factor name	Questions	Authors
FRC1	I can find suitable venture capitalists through road shows and competitions.	(Huang, 2022; Ning, 2017; Yang, 2023)
FRC2	I can mobilize my parents to solve my seed capital problem.	
FRC3	I can use my social network to help me with seed capital.	
FRC4	I can find partners with sufficient funding.	
FRC5	I can get start-up capital through government grants.	

4. Team Building Capability

Four items used to measure team building capability (TBC1–TBC4) were adapted from the literature. These items have been used as measurement items for TBC by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.14).

Table 3.14 Team Building Capability (TBC)

Factor name	Questions	Authors
TBC1	I research problems with the team to find acceptable solutions.	(Man et al., 2002; Ning, 2017; Yang, 2023)
TBC2	I share my ideas with the team and make decisions together.	
TBC3	I can lead the team to find solutions that meet our needs.	
TBC4	I can scientifically design the rights, responsibilities, and equity of the team's stakeholders.	

3.3.3.5 Environmental Dynamics

1. Intrapreneurial Environment

Four items used to measure intrapreneurial environment (IE1-IE4) were adapted from the literature. These items have been used as measurement items for IE by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.15).

Table 3.15 Intrapreneurial Environment (IE)

Factor name	Questions	Authors
IE1	Enterprises are risk-takers with a high level of innovation.	(Chen, 2018; Klepper & Sleeper, 2005; Wang, 2019)
IE2	Well-established business with strong financial resources.	
IE3	Companies continue to adjust their strategies and introduce new products and services in a competitive marketplace.	
IE4	All departments of the enterprise cooperate closely and communicate well.	

2. External Environment

Six items used to measure external environment (ETE1-ETE6) were adapted from the literature. These items have been used as measurement items for ETE by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.16).

Table 3.16 External Environment (ETE)

Factor name	Questions	Authors
ETE1	The industry in which the Company currently operates is characterized by rapid technological change.	(Chen, 2018; Jansen, Van Den Bosch, & Volberda, 2006; Wang, 2019)
ETE2	The marketplace is constantly generating new customers for products.	
ETE3	It is difficult to predict the competitive behavior of a company's competitors.	
ETE4	It is difficult to predict how the industry will evolve in three years.	
ETE5	The demand for products from new and existing customers of the company is highly variable.	
ETE6	Customer preferences are changing rapidly.	

3.3.3.6 Entrepreneurial Performance

1. Financial Performance

Three items used to measure financial performance (FP1-FP3) were adapted from the literature. These items have been used as measurement items for FP by many studies and experts believed they represented the factor substantially. For this reason, the experts' opinions were acknowledged and all the items remained unchanged (see Table 3.17).

Table 3.17 Financial Performance (FP)

Factor name	Questions	Authors
FP1	Entrepreneurship will significantly increase my income over my pre-entrepreneurship or pre-employment income.	(Wang, 2020; Li, 2023)
FP2	Entrepreneurship will significantly improve my standard of living compared to before entrepreneurship.	
FP3	Entrepreneurship will improve and enhance the quality of life for my family.	

2. Growth Performance

Three items used to measure the growth performance (GP1–GP3) were adapted from the literature. Incorporated with experts' ideas, the additional two items were developed and added about: firstly, you feel that I have contributed to society by

starting your own business; secondly, entrepreneurship makes you very happy (GP4-GP5). This gives a total of five items used to operationalize GP (see Table 3.18).

Table 3.18 Growth Performance (GP)

Factor name	Questions	Authors
GP1	My business has achieved the goals I had in mind before I started it.	(Wang, 2020; Li, 2023)
GP2	I have realized the value of my life.	
GP3	I have achieved some success in my current business.	
GP4	I feel that I have contributed to society by starting my own business.	
GP5	Entrepreneurship makes me very happy.	

3.3.4 Data Analysis

3.3.4.1 Descriptive Statistic

Descriptive statistical analysis serves as a pivotal phase in elucidating the intricacies of the research domain, offering a comprehensive portrayal of the study's subject and the fundamental attributes of the variables under scrutiny. Building upon the data gleaned from the questionnaire survey, this analysis method facilitates a systematic examination of the questionnaire variables, ultimately leading to an assessment of the questionnaire scale indicators' validity and appropriateness (Alabi, 2023).

In this study, descriptive statistical analysis includes the demographic analysis, mean, standard deviation (S.D.), and coefficient of variation (CV) for each item. The demographic analysis covers respondents' gender, age, education level, nature of university, professional category, number of employees, industry of enterprise. The mean reflects the general state of the aforementioned indicators for the sample enterprises, while the standard deviation measures the degree of variation among these indicators. The coefficient of variation, which is the ratio of the standard deviation to the mean, is typically used to compare different indicators and assess their relative degree of dispersion (Larson, 2006).

3.3.4.2 Reliability and Validity Analysis

Reliability analysis is an indicator in research that tests the stability and internal consistency of a scale. The higher the reliability score of a scale, the better the

internal consistency of the scale. The most used statistic for reliability testing is the alpha coefficient. DeVellis et al. (1991) proposed the following ideas: The alpha coefficient is best discarded if it is between 0.60 and 0.65; the alpha coefficient between 0.65 and 0.70 is the minimum acceptable value; the alpha coefficient between 0.70 and 0.80 is quite good; and the alpha coefficient between 0.80 and 0.90 is very good. In summary, this paper concludes that the scale reliability determination index alpha coefficient is 0.70 or above (DeVellis, Blalock, Holt, Renner, Blanchard, & Klotz, 1991). This study used the alpha coefficient to assess each sub-scale's reliability.

Validity analysis is a method used to assess whether a measurement tool accurately reflects the intended measurement objectives. It encompasses various aspects such as content validity, convergent validity, discriminant validity.

Within this framework, content validity is typically scrutinized through expert consultations, group deliberations, and other methodologies involving the subjective evaluation of scale items, drawing upon professional expertise. The aim is to determine the suitability of the selected scale items for measuring the relevant concepts. (Cooper & Schindler, 2002).

Convergent validity focuses on the strong correlations among items within the same construct, assessed using confirmatory factor analysis (CFA). Typically, the evaluation of convergent validity is based on the following criteria: standardized factor loadings exceeding 0.50, average variance extracted (AVE) surpassing 0.50, and composite reliability (CR) exceeding 0.60 (Fornell & Larcker, 1981; Hair, 1998). Meeting these criteria indicates a commendable level of convergent validity.

Discriminant validity, also referred to as discriminative validity, underscores the importance of segregating items associated with different constructs into separate factors. The presence of lower correlation coefficients between items from distinct constructs compared to those within the same construct serves as a hallmark of sound discriminant validity.

3.3.4.3 Structural Equation Modeling

Structural Equation Modeling (SEM) is a powerful multivariate statistical analysis method used to test hypotheses about the connections between observable variables and latent variables, as well as between latent variables. In essence, SEM is

leveraged to scrutinize hypothesized models grounded in theoretical constructs using empirically collected data. It frequently finds utility in hypothesis testing and the validation of confirmatory factor analysis.

An important part of structural equation modeling (SEM) is confirmatory factor analysis (CFA), which is a strong way to check how well the items in a questionnaire match up with the things they're supposed to measure. The assessment of alignment hinges on the fulfillment of predefined criteria, typically determined by scrutinizing whether factor loadings adhere to established standards. Concurrently, the evaluation of model fit relies on fit indices to ascertain compliance with predetermined criteria.

Hence, Structural Equation Modeling (SEM) emerges as a statistical methodology tailored for the purpose of rigorously testing theoretical models, as elucidated by Stein, Catherine et al. in 2012 (Stein, Morris, & Nock, 2012). In the context of this study, we employed SEM to perform confirmatory factor analysis, thereby facilitating a comprehensive evaluation of the research constructs.

3.3.4.4 Testing Moderated Mediation Effects

Mediation and moderation analyses are widely used in behavioral sciences. These methods are often integrated into "moderated mediation" or "mediation of moderation" analyses. As research models become more complex, involving multiple mediators and moderators, they are generally termed "moderated mediation" models. Hayes and Preacher (2013) refer to this as conditional process modeling (Hayes & Preacher, 2013). Numerous empirical studies analyze mediation and moderation effects, with many papers and book chapters emphasizing their value. Despite the interest, integrated discussions of both analyses within a single study are lacking. When such studies do exist, the analysis process is often segmented. This lack of combined mediation and moderation analyses is partly due to the absence of appropriate software. General statistical software typically lacks the capacity for these analyses, often requiring custom programming for variable transformations.

Given the complexity of the model, which involves both mediators and moderators, Hayes' PROCESS macro is used for computations and analyses. PROCESS macro is specifically designed to handle complex mediation and moderation models,

allowing simultaneous testing of multiple mediators and moderators, which is challenging with traditional regression methods. Hayes (2017) notes that PROCESS macro can perform comprehensive analyses of complex models through simple setup and input, including single mediation, multiple mediation, simple moderation, and conditional process analysis (Hayes, 2017). PROCESS macro uses the bootstrap method to estimate confidence intervals for indirect effects, and this testing method offers greater robustness. The bootstrap method enhances statistical power and accuracy by repeatedly sampling and calculating effects, resulting in more precise confidence intervals and p-values. Preacher and Hayes (2008) highlight that bootstrap methods significantly improve the reliability of mediation effect tests, especially with small samples and non-normal data distributions (Hayes, 2018). PROCESS macro features a user-friendly interface, allowing researchers to set model parameters through point-and-click operations without complex coding. Its flexibility is evident in supporting various types of variables (including continuous and categorical) and different model configurations. For example, when setting up a moderated mediation model, researchers simply select the appropriate model number and input the variable names. Hayes (2018) emphasizes this flexibility, enabling researchers to easily adjust and test different hypotheses. The theoretical foundation and application methods of PROCESS macro are widely supported in academic literature. Beyond Hayes' seminal works, many researchers have used PROCESS macro to analyze multiple mediation and moderation effects, demonstrating its broad applicability in social science research. For example, Montoya and Hayes (2017) used PROCESS macro to analyze complex models involving multiple mediators and moderators, showcasing its utility in empirical research (Hayes, Montoya, & Rockwood, 2017). PROCESS macro provides detailed regression analysis results, including coefficients, standard errors, t-values, and p-values for each path, as well as specific estimates and bootstrap confidence intervals for mediation and moderation effects. This detailed output allows researchers to understand the magnitude and significance of each effect and to make reasonable interpretations and discussions. For instance, the output includes estimates and significance tests for direct, indirect, and moderated effects, allowing researchers to clearly see how the independent variable influences the dependent variable through mediators and moderators. Based on the model depicted in Figure 3.1, this study

employed PROCESS Model 14 for the analysis. The conceptual diagram of Model 14 is illustrated in Figure 3.2, and statistical diagram of Model 14 is illustrated in Figure 3.3.

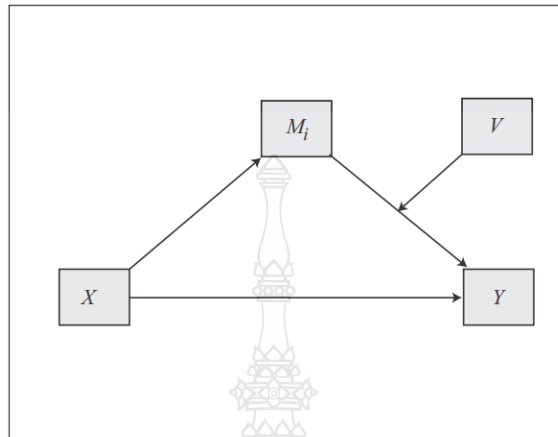


Figure 3.1 PROCESS Model 14 Conceptual Diagram

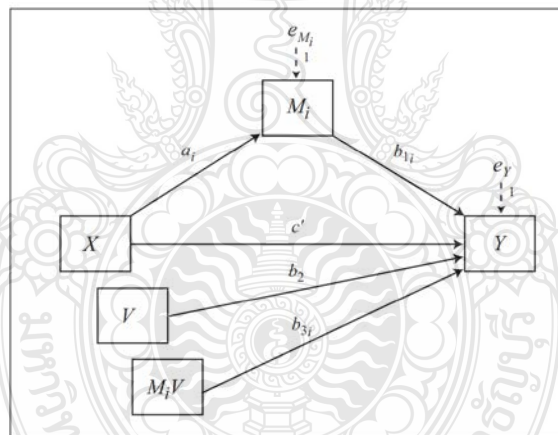


Figure 3.2 PROCESS Model 14 Statistical Diagram

3.4 Qualitative Research

3.4.1 Population and Sampling

This study employed a semi-structured interview method to collect relevant data. This method is widely used in disciplines like sociology. Researchers use an interview guide for direct conversations with interviewees, followed by detailed analysis of the interview content to examine the impact of entrepreneurship education on

entrepreneurial performance. The subjects of this study are college student entrepreneurs who have achieved success in their entrepreneurial ventures. The following section outlines the definition of entrepreneurial success. The interview subjects of this study are college student entrepreneurs who have achieved success in their entrepreneurial ventures, as well as university entrepreneurship education teachers or experts. The following section outlines the definition of entrepreneurial success.

Successful Entrepreneurs: Entrepreneurs achieve performance through meeting financial and business goals, such as profitability, growth, and market success. At the same time, individual entrepreneurs measure their success through career satisfaction, which includes personal fulfillment, achieving work-life balance, and professional growth. (Zhang, 2018).

3.4.2 Data Collection

To ensure data reliability and information richness during the collection phase, various strategies were used. Audio recordings were used as a data collection tool to ensure consistency, with the informed consent of the interviewees (Slavich & Irwin, 2014). During the interviews, the interviewees' voices were recorded through face-to-face meetings and online interviews. These recordings capture not just their opinions on the research topic but also their personal experiences and emotional reactions. After the interview concludes, the recordings are organized and categorized, then documented accordingly. Additionally, by using audio recordings, researchers could effectively preserve key details for later data analysis.

The interviews are planned to occur between December 2023 and January 2024, with a total of eight participants. Four of them are university students currently engaged in entrepreneurship, and four of them were from university entrepreneurship education teachers or experts. Because of geographical limitations, the study used a mix of offline and online interviews. Initially, the research team used an interview guide as a framework. The interviews are focused on the research question of this study, while allowing flexibility to explore additional information. The team paid special attention to capturing the interviewees' views on the impact of entrepreneurship education on entrepreneurial performance to ensure their attitudes were accurately represented. The sequence and format of the questions were designed to be flexible to encourage open discussion.

Secondly, the entire content of the interview needed to be recorded. Along with documenting the verbal statements, the research team also noted non-verbal cues during the interviews. The interview data was promptly organized to ensure completeness and accuracy.

Thirdly, the timing and location of the interviews were arranged to suit the interviewees' convenience. Each interview lasted for one hour, and the location could be negotiated based on the interviewees' preferences.

Lastly, before the interviews, it was important to explain the purpose to the interviewees and assure confidentiality to ease their concerns, encouraging them to answer truthfully in a relaxed manner. After the interviews, the research team would review the documents and notes to ensure data collection was complete. If any information was missing, they would contact the interviewees to gather more details.

3.4.3 Research Instruments

Researchers conducted a literature review to derive suitable key survey questions. The interview questions came from credible and reliable sources. The interview questions in this paper are based on studies by Liu Qinhu (Liu, 2022), Chen Yangyang (Chen, 2018), and Mai Yuqiang (Mai, 2021). The interview questions are as follows, and a detailed interview outline can be found in APPENDIX B.

Question 1: As a university student entrepreneur, could you talk about your experience with entrepreneurship education?

Question 2: How has entrepreneurship education helped you in your actual entrepreneurial endeavors? What kind of impact has it had? Please discuss based on your real-life experiences.

Question 3: What areas of university entrepreneurship education do you think need improvement? What problems exist?

Question 4: As an entrepreneur, what do you think has contributed to your current entrepreneurial success? Which factors have played a more significant role?

Question 5: As a teacher or expert in entrepreneurship education, could you describe the entrepreneurship education situation at your institution?

Question 6: In your opinion, in what ways should entrepreneurship education be improved?

Question 7: As an entrepreneurship education teacher, what do you believe university students need to do to achieve entrepreneurial success? Or, what conditions are necessary for entrepreneurial success?

3.4.4 Data Analysis

This paper analyzed the interview results using content analysis, a qualitative research technique that prioritizes clear coding rules and guidelines to minimize subjective bias. Content analysis is designed to systematically and objectively describe, analyze, and quantify various types of data, including text, audio, video, and images. This method is widely used in fields such as social sciences, communication studies, and psychology (Limna, Siripipatthanakul, Siripipattanakul, & Auttawechasakoon, 2022).

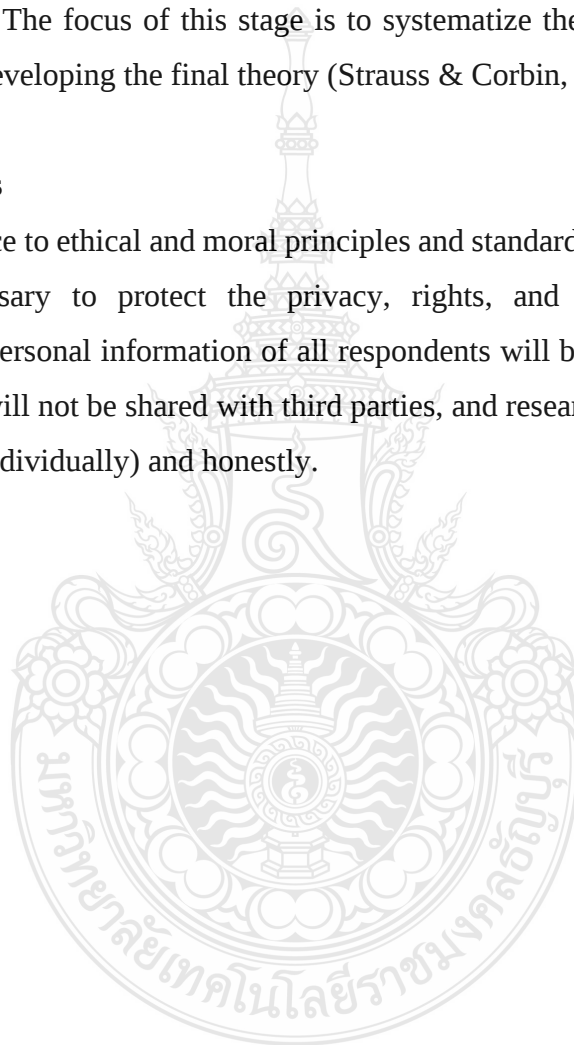
Furthermore, this study utilized NVivo 12 Plus for data interpretation, a comprehensive tool for qualitative data analysis that enhances the research process through a wide range of functionalities. NVivo 12 Plus simplifies the management, coding, and analysis of diverse data forms, such as text, audio, and video, catering to various research methodologies. With features like keyword coding and auto-coding, it allows researchers to efficiently categorize and retrieve relevant data, significantly speeding up the analysis process. NVivo 12 Plus also provides advanced tools for exploring themes and patterns through queries, word clouds, word frequencies, and cross-tabulation, helping identify emerging trends and draw meaningful conclusions from complex datasets. Additionally, it supports the generation of detailed reports and sophisticated charts, facilitating clear and impactful communication of research outcomes. By exporting codebooks that summarize the coding structure, it also aids in collaboration among research teams. Overall, NVivo 12 Plus offers a robust platform that combines intuitive design with powerful analytical capabilities, making it a preferred choice for streamlining qualitative analysis.

In qualitative research, open coding, axial coding, and selective coding are the three main coding methods in grounded theory, used to systematize and categorize data. Open coding is the initial stage of grounded theory, where the researcher thoroughly reviews the data, breaks it down into different units, and assigns labels or codes to each unit. The purpose of open coding is to identify themes, concepts, or patterns within the data, laying the foundation for further analysis. Axial coding follows open coding, during

which the researcher reintegrates the various concepts and categories identified in open coding and establishes relationships between these categories, forming a more complex theoretical framework. This process helps researchers better understand the structure and levels within the data. Selective coding is the final stage of the coding process, where the researcher refines core categories from the previously established categories and relationships and integrates other categories around these core categories to form the final theoretical model. The focus of this stage is to systematize the findings by identifying core themes and developing the final theory (Strauss & Corbin, 1998).

3.5 Ethical Issues

Adherence to ethical and moral principles and standards of conduct in scientific research is necessary to protect the privacy, rights, and well-being of research participants. The personal information of all respondents will be kept confidential, their confidential data will not be shared with third parties, and research data will be analyzed collectively (not individually) and honestly.



CHAPTER 4

RESEARCH RESULT

4.1 Introduction

This chapter presents the findings from quantitative and qualitative analyses. In the quantitative analysis, surveys were distributed widely after passing the IOC and pre-survey tests before formally distributing questionnaires. The study utilized SPSS 21.0, AMOS 24.0, and PROCESS for the analysis.

For the quantitative analyses. First, SPSS software was used to examine the measurement models of each latent variable and their measurement items to ensure they met reliability and consistency requirements. Next, AMOS software was employed to conduct confirmatory factor analysis (CFA), testing for convergent validity, discriminant validity, and other related metrics. Finally, PROCESS was used for hypothesis testing.

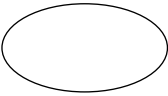
The qualitative analysis is based on semi-structured interviews with 4 successful entrepreneurial university students and 4 entrepreneurship education teachers and experts. NVivo 12.0 Plus was used to generate word clouds and word frequency from the interview content. The interviews were then analyzed using grounded theory, applying open coding, axial coding, and selective coding to explore the logical relationships between variables.

4.2 Data Preparation

4.2.1 Data Coding and Entry

The variables were coded in this study to simplify the process of processing and interpreting the data. The abbreviations used for the variables are shown in Table 4.1.

Table 4.1 Symbols and Meanings of Symbols Used to Represent Variables

Symbols	Implication
	Latent Variable
	Observed Variable
	Direct Effect
S.D.	Standard Deviation
β	Path Coefficient
f^2	Effect sizes
R^2	Coefficient of determination
HEI	Higher education institution
T-value	Test statistic with a t-distribution (t-distribution)
P-value	Observed Significance Level
AVE	The average of the variance can be calculated
CV	Coefficient of variation
Sk	Skewness
Ku	Kurtosis

4.2.2 Instrument Validation and Pre-survey

This study utilized the Item-Objective Consistency Index Method (IOC) to validate and evaluate the items used in the questionnaire in order to assess the content validity. The Item-Objective Consistency Index method was used to assess the questionnaire through seven university experts to ensure that the questionnaire was scientifically and comprehensibly sound. Information about the 7 experts is provided in Table 4.2. The assessment process focused on examining whether the main question items in the questionnaire were proposed in a way that met scientific standards, whether there

were errors or differences in understanding, and situations that could lead to content overlap or omission between question items.

Table 4.2 Expert Information for IOC

Name and surname	Work Unit	Nature of university	Position	Nationality
Chen Shuangying	University of Electronic Science and Technology of China	HEIs under Central Ministries and Agencies	Professor (Management)	China
Long Chengchun	Sichuan University of Science & Engineering	Academic HEI	Professor (Management)	China
Li Rui	Chongqing Vocational and Technical University of Mechatronics.	Professional HEI	Asst.Prof (Management)	China
Xiao Lan	Urban Vocational College of Sichuan	Vocational HEI	Professor (Management)	China
Sirinya Wiroomrath	Rajamangala University of Technology Thanyaburi	HEI	Asst.Prof (Management)	Thailand
Kanokporn Chaiprasit	Rajamangala University of Technology Thanyaburi	HEI	Asst.Prof (Management)	Thailand
Duangporn Puttawong	Rajamangala University of Technology Thanyaburi	HEI	Asst.Prof (Management)	Thailand

Each scale item was assessed according to Rovinelli and Hambleton's (1997) methodology and was categorized into three levels ranging from 0 to 1, whereas the item agreement (IOC) value needed to be greater than 0.50 (Rovinelli & Hambleton, 1977). The results of content validity index testing are presented in Appendix C. The IOC results of the analysis ranged from 0.90 to 1.00, indicating good agreement. The results of the combined assessment showed that the item-objective congruence index was 0.97, indicating that the content validity of the questionnaire was acceptable overall. The high score of this index reflects the unanimous approval of the questionnaire by the experts and confirms the scientific validity and accuracy of the questionnaire in terms of design and content.

The expert scores in the content validity assessment were considered authoritative, providing a dependable foundation for the investigation. The researchers revised the questionnaire based on the comments provided by the experts. The feedback process contributed to improving the scientific validity and accuracy of the questionnaire, guaranteeing that the instrument employed in the study had increased reliability and validity in measuring the areas of concern. By conducting a thorough expert evaluation

and making necessary revisions, this study has successfully confirmed the content validity of the questionnaire during the design phase. This ensures a more dependable foundation for future data collection and analysis.

Subsequently, an experiment was conducted in which three doctoral students and one entrepreneurial university student were invited to complete the questionnaire to clarify any ambiguities and uncommon expressions. Following the verification of the questionnaire's precision, a preliminary survey of limited scope was undertaken for the purposes of this research.

4.3 Pre-survey

The pre-survey was conducted from November 1, 2023, to November 30, 2023, with a total of 230 questionnaires distributed within a two-month period. After eliminating low-quality questionnaires riddled with missing values, filled options, and obvious logical inconsistencies, a total of 141 valid questionnaires were collected, resulting in an effective response rate of 61.30%.

4.3.1 Demographic Data

The questionnaire sent to the research sample stipulated that the respondents were entrepreneurial college students. The questions addressed demographics and included seven sections: gender, age, educational level, nature of university, professional category, number of employees, and industry of the enterprise. The demographics are summarized in Table 4.3.

Table 4.3 Demographic Data of Pre-survey

Attribute	Category	Frequency	Proportion (%)
Gender	Male	80	56.74
	Female	61	43.26
Age	18-22	28	19.86
	23-27	92	65.25
	28-35	21	14.89
Educational level	Specialized	36	25.53
	Undergraduate	88	62.41
	Postgraduate	17	12.06

Table 4.4 Demographic Data of Pre-survey (Cont.)

Attribute	Category	Frequency	Proportion (%)
Nature of university	HEIs under Central Ministries and Agencies	35	24.82
	Academic HEIs	56	39.72
	Professional HEIs	14	9.93
	Vocational HEIs	36	25.53
Professional Category	Engineering	7	4.96
	Finance	14	9.93
	Management	63	44.68
	Education	21	14.89
	Others	36	25.53
Number of Employees	10 Employees or Less	85	60.28
	11-20 Employees	21	14.89
	21-50 Employees	21	14.89
	More than 50 Employees	14	9.93
Industry of the Enterprise	High-tech	14	9.93
	Traditional Manufacturing	14	9.93
	Construction / Real Estate	7	4.96
	Trade/Services	56	39.72
	Finance	24	17.02
	Others	26	18.44
	Overall	141	100.00

According to Table 4.3, 56.74% of respondents were male, and 43.26% were female. The age group of 23-27 years old had the most respondents, accounting for 65.25% of the total, followed by the age groups of 18-22 years old (19.86%) and 28-35 years old (14.89%). Respondents with an undergraduate made up the majority (62.41% of the total), followed by those with specialized (25.53%), and respondents with postgraduate (12.06%). As for nature of university attended by the respondents, 24.82% came from HEIs under Central Ministries and Agencies, 39.72% from Academic HEIs, 9.93% from Professional HEIs, and 25.53% from Vocational HEIs. Regarding the professional category, management had the highest proportion, reaching 44.68%. Following that, others accounted for 25.53%, education ranked third at 14.89%, finance

accounted for 9.93%, and engineering had the lowest proportion at 4.96%. Concerning the number of employees, businesses with fewer than 10 employees accounted for 60.28% of the total. The proportions of businesses with 11–20 employees and 21–50 employees were the same at 14.89%. Enterprises with over 50 employees constituted only 9.93% of the total. Regarding the industry of the enterprise, high-tech companies accounted for 9.93%, traditional manufacturing also accounted for 9.93%, construction and real estate accounted for 4.96%, trade and services accounted for 39.72%, finance accounted for 17.02%, and others accounted for 18.44%.

4.3.2 Reliability Test and Questionnaire Correction

Reliability testing examines the stability of items in the questionnaire, so the data collected from the pre-survey are subjected to reliability testing as a first step. The reliability testing in this study is measured using the Internal Consistency Reliability (ICR) method. This method typically employs the Cronbach's α coefficient for measurement, where a higher Cronbach's α value indicates greater internal consistency of the scale. If the alpha value is greater than 0.70, it indicates good reliability. Additionally, judgment is typically made based on indicators such as Alpha if an item is deleted, CITC (Corrected Item-Total Correlation) value in the research results. Typically, if the alpha value increases after deleting an item, the CITC value is less than 0.40, it indicates poor internal consistency between the item and other items, and deletion may be considered (Bollen, 1989; Han, 2020; Hinkin, 1998; Polit, Beck, & Owen, 2007). This study will use SPSS 21.0 to process the reliability of the pre-survey questionnaire data through "Reliability Analysis." The results are presented in Tables 4.4-4.8.

Table 4.5 Pre-survey Reliability Analysis of EE

Construct	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
EE	PI	PI1	0.861	0.868	0.912
		PI2	0.758	0.901	
		PI3	0.821	0.878	
		PI4	0.789	0.892	
	PS	PS1	0.872	0.851	0.906
		PS2	0.774	0.885	
		PS3	0.753	0.892	
		PS4	0.777	0.884	
	LE	LE1	0.849	0.820	0.88
		LE2	0.685	0.860	
		LE3	0.647	0.869	
		LE4	0.782	0.837	
		LE5	0.622	0.874	
	SS	SS1	0.882	0.906	0.932
		SS2	0.832	0.913	
		SS3	0.819	0.917	
		SS4	0.804	0.919	
		SS5	0.782	0.923	

Table 4.6 Pre-survey Reliability Analysis of EI

Construct	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
EI	PD	PD1	0.890	0.860	0.903
		PD2	0.815	0.873	
		PD3	0.780	0.880	
		PD4	0.770	0.880	
		PD5	0.780	0.879	
		PD6	0.389	0.929	
	PF	PF1	0.893	0.907	0.934
		PF2	0.798	0.924	
		PF3	0.790	0.925	
		PF4	0.837	0.917	
		PF5	0.820	0.920	
	PA	PA1	0.872	0.857	0.909
		PA2	0.757	0.897	
		PA3	0.778	0.889	
		PA4	0.796	0.882	

Table 4.7 Pre-survey Reliability Analysis of EC

Construct	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
EC	OIC	OIC1	0.891	0.813	0.909
		OIC2	0.798	0.889	
		OIC3	0.792	0.892	
	MC	MC1	0.877	0.882	0.921
		MC2	0.835	0.892	
		MC3	0.817	0.898	
		MC4	0.769	0.914	
	FRC	FRC1	0.891	0.912	0.937
		FRC2	0.844	0.920	
		FRC3	0.827	0.924	
		FRC4	0.813	0.926	
		FRC5	0.796	0.929	
	TBC	TBC1	0.843	0.841	0.896
		TBC2	0.768	0.866	
		TBC3	0.735	0.880	
		TBC4	0.757	0.870	

Table 4.8 Pre-survey Reliability Analysis of ED

Construct	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
ED	IE	IE1	0.848	0.854	0.902
		IE2	0.776	0.876	
		IE3	0.765	0.881	
		IE4	0.764	0.880	
	ETE	ETE1	0.739	0.837	0.870
		ETE2	0.745	0.836	
		ETE3	0.772	0.834	
		ETE4	0.869	0.809	
		ETE5	0.772	0.832	
		ETE6	0.258	0.924	

Table 4.9 Pre-survey Reliability Analysis of EP

Construct	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
EP	PF	PF1	0.824	0.818	0.886
		PF2	0.776	0.851	
		PF3	0.779	0.842	
	GP	GP1	0.876	0.909	0.933
		GP2	0.802	0.922	
		GP3	0.826	0.917	
		GP4	0.796	0.923	
		GP5	0.826	0.918	

It is obvious from Table 4.4 to Table 4.8 that the Cronbach's α values for the EI scale are above 0.90, while those for the EE, EC, ED, and EP scales are above 0.80, indicating good reliability of the five scales. From Tables 4.4, 4.6, and 4.8, it is evident that all CITC values are above 0.50, indicating that there is no need to delete items. However, the CITC coefficient for item PD6 in the EI scale (Table 4.5) is 0.389, which is less than 0.40. Similarly, for item ETE6 in the ED scale (Table 4.7), the CITC coefficient is 0.258, less than 0.40 too.

Excluding these two items is expected to enhance the alpha coefficient of the scales. Item PD6, "Entrepreneurship is a good way for me to develop and improve my skills." emphasizes skill development, contrasting with other items that focus on emotional impact, confidence, specific challenges, and rewards in entrepreneurship. Item ETE6, "Customer preferences are changing rapidly." covers a wide range of customer preferences, including product features, services, and pricing. This broad scope may lead to varied respondent interpretations and increased response variability. Therefore, based on these considerations, items PD6 and ETE6 were excluded from the analysis. Tables 4.9 and 4.10 display the revised reliability testing outcomes for the EI and ED scales.

Table 4.10 Modified Reliability Analysis of EI

Construct	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
EI	PD	PD1	0.872	0.904	0.929
		PD2	0.816	0.913	
		PD3	0.812	0.914	
		PD4	0.787	0.918	
		PD5	0.804	0.915	

Table 4.11 Modified Reliability Analysis of ED

Construct	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
ED	ET	ETE1	0.773	0.913	0.924
		ETE2	0.770	0.914	
		ETE3	0.890	0.890	
		ETE4	0.788	0.910	
		ETE5	0.811	0.905	

From Tables 4.9 and 4.10, it is evident that the Cronbach's α values for the revised EI and ED scales are above 0.90, with all CITC values above 0.50, indicating excellent reliability of the scales, with no need to delete items.

4.4 Demographic Data of Formal Survey

This study, building on the literature review and relevant theories presented in Chapters 2 and 3, constructed a research framework and hypotheses on the mechanism through which EE impacts EP. Following a pre-survey, relevant data were collected through formal surveys, and the hypotheses were tested using the empirical data analysis methods described. Surveys were distributed via Questionnaire Star between December 2023 and January 2024, with a total of 600 questionnaires distributed, yielding 424 valid responses and an effective response rate of 70.67%.

According to the obtained samples, the data were organized and summarized based on gender, age, education level, type of university, professional category, number of employees, and industry of the respondents' enterprises, as shown in Table 4.11.

Table 4.12 Descriptive Analysis of Respondents' Basic Information

Attribute	Category	Frequency	Proportion (%)
Gender	Male	315	74.29
	Female	109	25.71
Age	18-22	120	28.30
	23-27	221	52.12
	28-35	83	19.58
Educational Level	Specialized	93	21.93
	Undergraduate	296	69.81
	Postgraduate	35	8.25
Nature of university	HEIs under Central Ministries and Agencies	104	24.53
	Academic HEIs	120	28.30
	Professional HEIs	107	25.24
	Vocational HEIs	93	21.93
	Others	23	5.42
Professional Category	Engineering	37	8.73
	Finance	127	29.95
	Management	192	45.28
	Education	45	10.61
	Others	23	5.42
Number of Employees	10 Employees or Less	326	76.89
	11-20 Employees	73	17.22
	21-50 Employees	12	2.83
	More than 50 Employees	13	3.07
Industry of the Enterprise	High-tech	15	3.54
	Traditional Manufacturing	86	20.28
	Construction / Real Estate	14	3.30
	Trade/Services	275	64.86
	Finance	17	4.01
	Others	17	4.01
	Overall	424	100.00

According to Table 4.11, 74.29% of respondents were male, and 25.71% were female. The age group of 23-27 years old had the most respondents, accounting for 52.12% of the total, followed by the age groups of 18-22 years old (28.30%) and 28-35 years old (19.58%). Respondents with an undergraduate made up the majority (69.81% of the total), followed by those with specialized (21.93%), and respondents with postgraduate (8.25%). As for the nature of university attended by the respondents, 24.53%

came from HEIs under Central Ministries and Agencies, 28.30% from Academic HEIs, 25.24% from Professional HEIs, and 21.93% from Vocational HEIs. Regarding the professional category, management had the highest proportion, reaching 45.28%. Following that, finance accounted for 29.95%, education ranked third at 10.61%, engineering accounted for 8.37%, and others had the lowest proportion at 5.42%. Concerning the number of employees, businesses with fewer than 10 employees accounted for 76.89% of the total. The proportions of businesses with 11-20 employees accounted for 17.22%, and those with 21–50 employees accounted for 2.83%. Enterprises with over 50 employees constituted only 3.07% of the total. Regarding the industry of the enterprise, high-tech companies accounted for 3.54%, traditional manufacturing also accounted for 20.28%, construction and real estate accounted for 3.30%, trade and services accounted for 64.86%, and finance and others were the same at 4.01%.

4.5 Descriptive Statistical and Normality Test of Formal Survey

Descriptive statistical and normality test of formal survey analysis in terms of mean, standard deviation (S.D.), and coefficient of variation (CV), as shown in Table 4.12.

Table 4.12 Descriptive statistical and normality test of formal survey Data (N=424)

Construct	Item	Mean	S.D.	CV
EE	PI1	2.913	1.330	0.457
	PI2	3.116	1.129	0.362
	PI3	3.276	1.186	0.362
	PI4	3.208	1.100	0.343
	PS1	2.950	1.247	0.423
	PS2	3.106	1.081	0.348
	PS3	3.123	1.134	0.363
	PS4	3.196	1.095	0.343
	LE1	2.988	1.269	0.425
	LE2	3.517	1.173	0.334
	LE3	3.644	1.208	0.332
	LE4	3.821	1.328	0.348
	LE5	3.127	1.192	0.381

Table 4.13 Descriptive statistical and normality test of formal survey Data (N=424) (Cont.)

Construct	Item	Mean	S.D.	CV
EI	SS1	3.002	1.214	0.404
	SS2	3.203	1.120	0.350
	SS3	3.137	1.050	0.335
	SS4	3.172	1.143	0.360
	SS5	3.208	1.049	0.327
	PD1	3.047	1.273	0.418
	PD2	3.210	1.149	0.358
	PD3	3.189	1.079	0.338
	PD4	3.323	1.101	0.331
	PD5	3.241	1.115	0.344
	PF1	3.292	1.262	0.383
	PF2	3.448	1.092	0.317
	PF3	3.453	1.095	0.317
	PF4	3.446	1.141	0.331
	PF5	3.396	1.127	0.332
EC	PA1	2.894	1.263	0.436
	PA2	3.057	1.046	0.342
	PA3	3.017	1.095	0.363
	PA4	3.052	1.147	0.376
	OIC1	3.302	1.311	0.397
	OIC2	3.330	1.125	0.338
	OIC3	3.311	1.120	0.338
	MC1	3.125	1.244	0.398
	MC2	3.165	1.105	0.349
	MC3	3.255	1.103	0.339
	MC4	3.182	1.048	0.329
	FRC1	3.068	1.212	0.395
	FRC2	3.278	1.131	0.345
	FRC3	3.165	1.055	0.333
	FRC4	3.198	1.097	0.343
	FRC5	3.226	1.068	0.331
	TBC1	2.962	1.196	0.404
	TBC2	3.269	1.095	0.335
	TBC3	3.175	0.957	0.301
	TBC4	3.104	1.078	0.347

Table 4.14 Descriptive statistical and normality test of formal survey Data (N=424) (Cont.)

Construct	Item	Mean	S.D.	CV
EP	FP1	2.870	1.268	0.442
	FP2	3.000	1.085	0.362
	FP3	3.075	1.144	0.372
	GP1	3.078	1.221	0.397
	GP2	3.238	1.112	0.343
	GP3	3.233	1.134	0.351
	GP4	3.130	1.109	0.354
	GP5	3.050	1.107	0.363
ED	IE1	3.059	1.269	0.415
	IE2	3.064	1.044	0.341
	IE3	3.104	1.035	0.333
	IE4	3.222	1.075	0.334
	ETE1	3.283	1.126	0.343
	ETE2	3.373	1.019	0.302
	ETE3	3.330	1.003	0.301
	ETE4	3.189	1.188	0.373
	ETE5	3.483	1.038	0.298

As can be seen from the table 4.12, for EE, the item with the highest mean value was LE4 (M=3.821, SD=1.328) under learning effect variable. The item with the lowest mean value was PI1 (M=2.913, SD=1.330) under personal involvement variable. For EI, the item with the highest mean value was PF3 (M=3.453, SD=1.095) under perceived feasibility variable. The item with the lowest mean value was PA1 (M=2.894, SD=1.263) under propensity to act variable. For EC, the item with the highest mean value was OIC2 (M=3.330, SD=1.125) under opportunity identification capability variable. The item with the lowest mean value was TBC1 (M=2.962, SD=1.196) under team building capability variable. For ED, the item with the highest mean value was ETE5 (M=3.483, SD=1.038) under external environment variable. The item with the lowest mean value was IE1 (M=3.059, SD=1.269) under intrapreneurial environment variable. For EP, the item with the highest mean value was GP2 (M=3.238, SD=1.112) under growth performance variable. The item with the lowest mean value was PF1 (M=2.870, SD=1.268) under financial performance variable.

As shown in Table 4.12, the mean values of all items range from 2.870 to 3.821, indicating a relatively balanced distribution. Additionally, the standard deviation (S.D.) of all items ranges from 0.957 to 1.330, suggesting a low degree of dispersion in the sample data. The coefficient variation (CV) ranges from 0.298 to 0.457, with the exception of the item ETE5, the CV values for the other items exceeded 0.30 (30%), indicating significant variability in respondents' agreement on these items. This suggested a lack of consensus or uniformity in their responses, potentially reflecting divergent or controversial viewpoints.

4.6 Reliability Analysis of Formal Survey

The reliability analysis in this study continues to employ Cronbach's alpha reliability coefficient to assess the consistency of the research variables across the questionnaire's measurement items. As posited by Devellis (1991), a variable is considered to exhibit satisfactory reliability when its Cronbach's alpha coefficient exceeds 0.70. Given the presence of five variables encompassing 15 factors in this study (DeVellis et al., 1991), each variable undergoes separate reliability analysis. The ensuing reliability measurements are presented in Table 4.13 below.

Table 4.15 Reliability Analysis of Formal Survey

Variable	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
EE	PI	PI1	0.717	0.843	0.872
		PI2	0.683	0.852	
		PI3	0.749	0.827	
		PI4	0.769	0.821	
	PS	PS1	0.707	0.828	0.863
		PS2	0.677	0.838	
		PS3	0.725	0.819	
		PS4	0.739	0.813	
	LE	LE1	0.737	0.871	0.894
		LE2	0.715	0.876	
		LE3	0.748	0.868	
		LE4	0.736	0.872	
		LE5	0.764	0.865	

Table 4.16 Reliability Analysis of Formal Survey (Cont.)

Variable	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
EI	SS	SS1	0.703	0.882	0.895
		SS2	0.743	0.872	
		SS3	0.750	0.870	
		SS4	0.778	0.863	
		SS5	0.743	0.872	
	PD	PD1	0.718	0.879	0.895
		PD2	0.705	0.879	
		PD3	0.788	0.862	
		PD4	0.754	0.869	
		PD5	0.751	0.869	
	PF	PF1	0.738	0.871	0.893
		PF2	0.720	0.874	
		PF3	0.730	0.872	
		PF4	0.749	0.867	
		PF5	0.760	0.865	
EC	PA	PA1	0.718	0.825	0.863
		PA2	0.691	0.835	
		PA3	0.720	0.822	
		PA4	0.726	0.819	
	OIC	OIC1	0.726	0.785	0.847
		OIC2	0.728	0.778	
		OIC3	0.705	0.799	
	MC	MC1	0.684	0.832	0.859
		MC2	0.662	0.837	
		MC3	0.735	0.808	
		MC4	0.747	0.805	
	FRC	FRC1	0.702	0.881	0.894
		FRC2	0.763	0.866	
		FRC3	0.769	0.865	
		FRC4	0.754	0.868	
		FRC5	0.721	0.875	
ED	TBC	TBC1	0.709	0.812	0.855
		TBC2	0.680	0.822	
		TBC3	0.690	0.821	
		TBC4	0.722	0.804	
	IE	IE1	0.638	0.823	0.841
		IE2	0.616	0.824	
		IE3	0.734	0.776	
		IE4	0.736	0.773	

Table 4.17 Reliability Analysis of Formal Survey (Cont.)

Variable	Dimension	Item	CITC	Alpha if item Deleted	Cronbach's α
EP	ETE	ETE1	0.763	0.864	0.893
		ETE2	0.730	0.872	
		ETE3	0.726	0.872	
		ETE4	0.747	0.869	
		ETE5	0.731	0.871	
	PF	PF1	0.693	0.790	0.838
		PF2	0.710	0.770	
		PF3	0.709	0.768	
	GP	GP1	0.735	0.888	0.903
		GP2	0.724	0.889	
		GP3	0.789	0.875	
		GP4	0.767	0.880	
		GP5	0.778	0.878	

The reliability test was still measured using the Cronbach's Alpha coefficient, where a higher Cronbach's Alpha value indicates greater internal consistency of the scale. If the alpha value is greater than 0.70, it indicates good reliability. Additionally, judgment is typically made based on indicators such as Alpha if an item is deleted, CITC (Corrected Item-Total Correlation) value in the research results. Typically, if the alpha value increases after deleting an item, the CITC value is less than 0.40, it indicates poor internal consistency between the item and other items, and deletion may be considered (Bollen, 1989; Han, 2020; Hinkin, 1998; Polit, Beck, & Owen, 2007)

As shown in Table 4.13, the Cronbach's alpha coefficient for each part of the EE, EI, EC, ED, and EP scale is more than 0.70. The CITC value is also more than 0.40. This means that the variables are internally consistent, and the measurement questions and items meet the needs of the study. From the value of "Alpha if item Deleted", the deletion of any item will not cause the Cronbach's alpha value to increase, which also indicates that the above variables have good reliability.

4.7 Validity Analysis of Formal Survey

The validity of this study was assessed using content validity, convergent validity, and discriminant validity. To ensure content validity, expert consultation was used to subjectively assess the validity of the scales based on professional knowledge to further infer whether the selected scales could accurately measure the constructs.

In the formal investigation, this study employed Amos 24.0 software to construct Confirmatory Factor Analysis (CFA) structural equation models for the latent variables. The CFA method was used to assess both structural and convergent validity of these variables. The fitness standard of the confirmatory factor analysis in this study is mainly based on the standard of Gefen (Gefen, Straub, & Boudreau, 2000). For models with large samples, the value of the chi-square degree of freedom ratio (χ^2/df) is required to be less than 5 (Kothari, 2004). The smaller the value of RMSEA is, the better the fitness of the model is. Its value is between 0.05 and 0.08, which indicates that the fitness of the model is good. If it is less than 0.05, the fitness of the model is very good. When the GFI value is greater than 0.90, it indicates that the fitness is good. AGFI is the adjusted fitness index, which increases with the increase of GFI, preferably greater than 0.90. The recommended value for NFI is greater than 0.90. For CFI, the recommended value is greater than 0.90, ideally approaching 1. The recommended value for TLI is greater than 0.90, ideally approaching 1.

The decisions on whether a measurement instrument should be modeled as a higher-order structure were based on its theoretical relevance, as outlined in the underlying theory (Hair et al., 2010). When the theory indicated that a higher-level factor explained the relationships between lower-order factors, the model was considered to be second-order, third-order, or even of a higher order, depending on the number of levels separating the higher-order factor from the observed variables. Since some of the research hypotheses in this study operated at a second-order level, a second-order CFA was subsequently conducted. A second-order CFA model could be estimated as a congeneric version, providing/allowing a degree of freedom for error variances and regression weights, or alternatively, as parallel versions (Byrne, 2010). Furthermore, when conducting higher-order measurement model analysis, it was imperative to verify the unidimensionality of each construct. Following the assessment of Model Fit, tests for

construct validity through Average Variance Extracted (AVE) and Composite Reliability (CR) were also incorporated. According to established criteria, standardized factor loadings needed to exceed 0.50, while AVE values should surpass 0.50 and CR values exceed 0.60 to ensure adequate validity (Fornell & Larcker, 1981; Hair, 1998).

The model fit and convergent validity of each hypothesized second-order CFA model (EE, EI, EC, ED, and EP) were subsequently analyzed and discussed in detail.

4.7.1 The Second-Order Factor of EE

Figure 4.1 presented the second-order measurement model of EE, based on PI, PS, LE, and SS, with the corresponding model fit indices shown in Table 4.14 and the structural validity test results in Table 4.15.

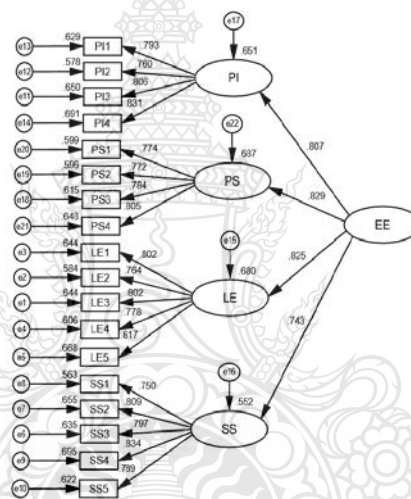


Figure 4.1 Second-Order Measurement Model of EE

Table 4.18 Model Fit for Second-Order Measurement Model of EE

Model Fit Criteria	Value	Acceptable level
χ^2/df	2.204	< 5
RMR	0.045	< 0.080
RMSEA	0.053	< 0.080
GFI	0.933	> 0.900
AGFI	0.912	> 0.900
NFI	0.941	> 0.900
TLI	0.961	> 0.900
CFI	0.966	> 0.900

Table 4.19 Second-order Validity of EE

Construct	Item	Factor Loading	CR	AVE
PI	PI3	0.806	0.875	0.637
	PI2	0.760		
	PI1	0.793		
	PI4	0.831		
PS	PS3	0.784	0.864	0.614
	PS2	0.772		
	PS1	0.774		
	PS4	0.805		
LE	LE3	0.802	0.894	0.629
	LE2	0.764		
	LE1	0.802		
	LE4	0.778		
	LE5	0.817		
SS	SS3	0.797	0.896	0.634
	SS2	0.809		
	SS1	0.750		
	SS4	0.834		
	SS5	0.789		
EE	PI	0.807	0.878	0.643
	PS	0.829		
	LE	0.825		
	SS	0.743		

As shown in Tables 4.14 and 4.15, all model fit indices were within the recommended thresholds, with all factor loadings above 0.50, AVE greater than 0.50, and CR exceeding 0.60. This indicates that the second-order model of EE demonstrated strong convergent validity.

4.7.2 The Second-Order Factor of EI

Figure 4.2 presented the second-order measurement model of EI, based on PD, PF and PA, with the corresponding model fit indices shown in Table 4.16 and the structural validity test results in Table 4.17.

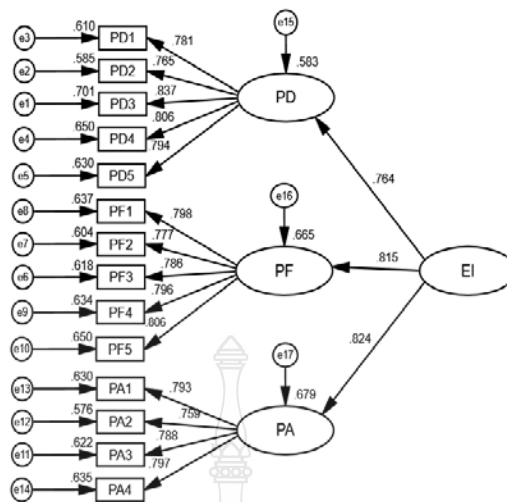


Figure 4.2 Second-Order Measurement Model of EI

Table 4.20 Model Fit for Second-Order Measurement Model of EI

Model Fit Criteria	Value	Acceptable level
χ^2/df	1.698	< 5
RMR	0.036	< 0.080
RMSEA	0.041	< 0.080
GFI	0.961	> 0.900
AGFI	0.945	> 0.900
NFI	0.965	> 0.900
TLI	0.982	> 0.900
CFI	0.985	> 0.900

Table 4.21 Second-order Validity of EI

Construct	Item	Factor Loading	CR	AVE
PD	PD5	0.794	0.897	0.635
	PD4	0.806		
	PD3	0.837		
	PD2	0.765		
	PD1	0.781		
PF	PF5	0.806	0.894	0.628
	PF4	0.796		
	PF3	0.786		
	PF2	0.777		
	PF1	0.798		

Table 4.22 Second-order Validity of EI (Cont.)

Construct	Item	Factor Loading	CR	AVE
PA	PA4	0.797	0.865	0.615
	PA3	0.788		
	PA2	0.759		
	PA1	0.793		
EI	PD	0.764	0.843	0.642
	PF	0.815		
	PA	0.824		

As shown in Tables 4.16 and 4.17, all model fit indices were within the recommended thresholds, with all factor loadings above 0.50, AVE greater than 0.50, and CR exceeding 0.60. This indicates that the second-order model of EI demonstrated strong convergent validity.

4.7.3 The Second-order Factor of EC

Figure 4.3 presented the second-order measurement model of EC, based on OIC, MC, FRC and TBC, with the corresponding model fit indices shown in Table 4.18 and the structural validity test results in Table 4.19.

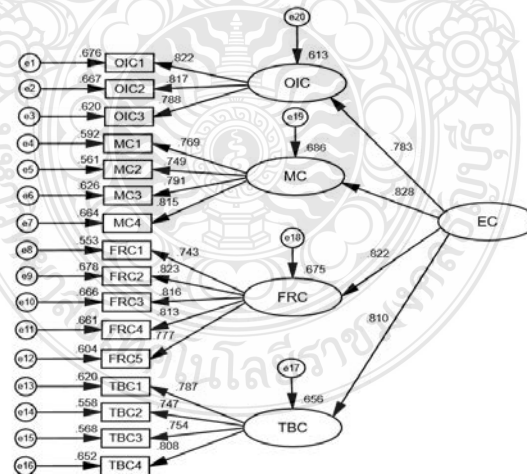
**Figure 4.3** Second-Order Measurement Model of EC

Table 4.23 Model Fit for Second-Order Measurement Model of EC

Model Fit Criteria	Value	Acceptable level
χ^2/df	1.378	< 5
RMR	0.031	< 0.080
RMSEA	0.030	< 0.080
GFI	0.963	> 0.900
AGFI	0.950	> 0.900
NFI	0.965	> 0.900
TLI	0.988	> 0.900
CFI	0.990	> 0.900

Table 4.24 Second-order Validity of EC

Construct	Item	Factor Loading	CR	AVE
OIC	OIC3	0.788	0.850	0.655
	OIC2	0.817		
	OIC1	0.822		
MC	MC4	0.815	0.862	0.611
	MC3	0.791		
	MC2	0.749		
	MC1	0.769		
FRC	FRC5	0.777	0.896	0.632
	FRC4	0.813		
	FRC3	0.816		
	FRC2	0.823		
	FRC1	0.743		
TBC	TBC4	0.808	0.857	0.600
	TBC3	0.754		
	TBC2	0.747		
	TBC1	0.787		
EC	OIC	0.783	0.885	0.658
	MC	0.828		
	FRC	0.822		
	TBC	0.810		

As shown in Tables 4.18 and 4.19, all model fit indices were within the recommended thresholds, with all factor loadings above 0.50, AVE greater than 0.50, and CR exceeding 0.60. This indicates that the second-order model of EC demonstrated strong convergent validity.

4.7.4 The Second-Order Factor of ED

Figure 4.4 presented the second-order measurement model of ED, based on IE and ETE, with the corresponding model fit indices shown in Table 4.20 and the structural validity test results in Table 4.21.

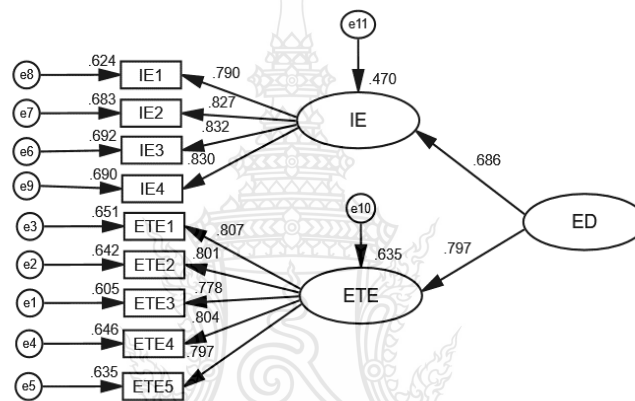


Figure 4.4 Second-order Measurement Model of ED

Table 4.25 Model Fit for Second-order Measurement Model of ED

Model Fit Criteria	Value	Acceptable level
χ^2/df	1.067	< 5
RMR	0.036	< 0.080
RMSEA	0.013	< 0.080
GFI	0.986	> 0.900
AGFI	0.975	> 0.900
NFI	0.988	> 0.900
TLI	0.999	> 0.900
CFI	0.999	> 0.900

Table 4.26 Second-order Validity of ED

Construct	Item	Factor Loading	CR	AVE
IE	IE4	0.830	0.891	0.672
	IE3	0.832		
	IE2	0.827		
	IE1	0.790		
ETE	ETE5	0.797	0.897	0.636
	ETE4	0.804		
	ETE3	0.778		
	ETE2	0.801		
	ETE1	0.807		
ED	IE	0.686	0.711	0.553
	ETE	0.797		

As shown in Tables 4.20 and 4.21, all model fit indices were within the recommended thresholds, with all factor loadings above 0.50, AVE greater than 0.50, and CR exceeding 0.60. This indicates that the second-order model of ED demonstrated strong convergent validity.

4.7.5 The Second-Order Factor of EP

Figure 4.5 presented the second-order measurement model of EP, based on FP and GP, with the corresponding model fit indices shown in Table 4.22 and the structural validity test results in Table 4.23.

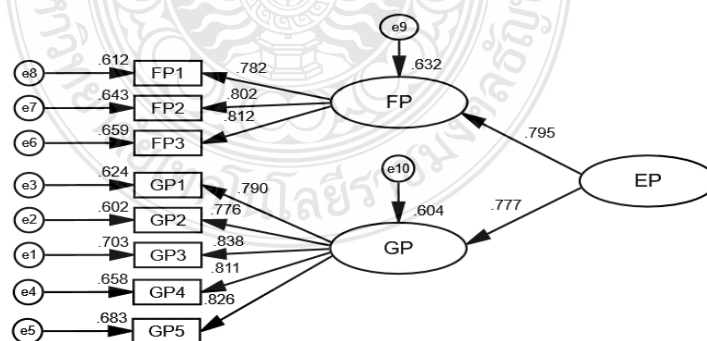
**Figure 4.5** Second-order Measurement Model of EP

Table 4.27 Model Fit for Second-order Measurement Model of EP

Model Fit Criteria	Value	Acceptable level
χ^2/df	2.502	< 5
RMR	0.028	< 0.080
RMSEA	0.060	< 0.080
GFI	0.974	> 0.900
AGFI	0.951	> 0.900
NFI	0.976	> 0.900
TLI	0.978	> 0.900
CFI	0.985	> 0.900

Table 4.28 Second-order Validity of EP

Construct	Item	Factor Loading	CR	AVE
FP	FP3	0.812	0.841	0.638
	FP2	0.802		
	FP1	0.782		
GP	GP5	0.826	0.904	0.654
	GP4	0.811		
	GP3	0.838		
	GP2	0.776		
	GP1	0.790		
EP	GP	0.777	0.764	0.618
	FP	0.795		

As shown in Tables 4.22 and 4.23, all model fit indices were within the recommended thresholds, with all factor loadings above 0.50, AVE greater than 0.50, and CR exceeding 0.60. This indicates that the second-order model of EE demonstrated strong convergent validity.

4.7.6 Confirmatory Factor Analysis for Measurement Model

Figure 4.6 shows the validation factor analysis of the measurement model for this study, and the results of the model fit are shown in Table 4.24 and the results of the convergent validity are shown in Table 4.25.

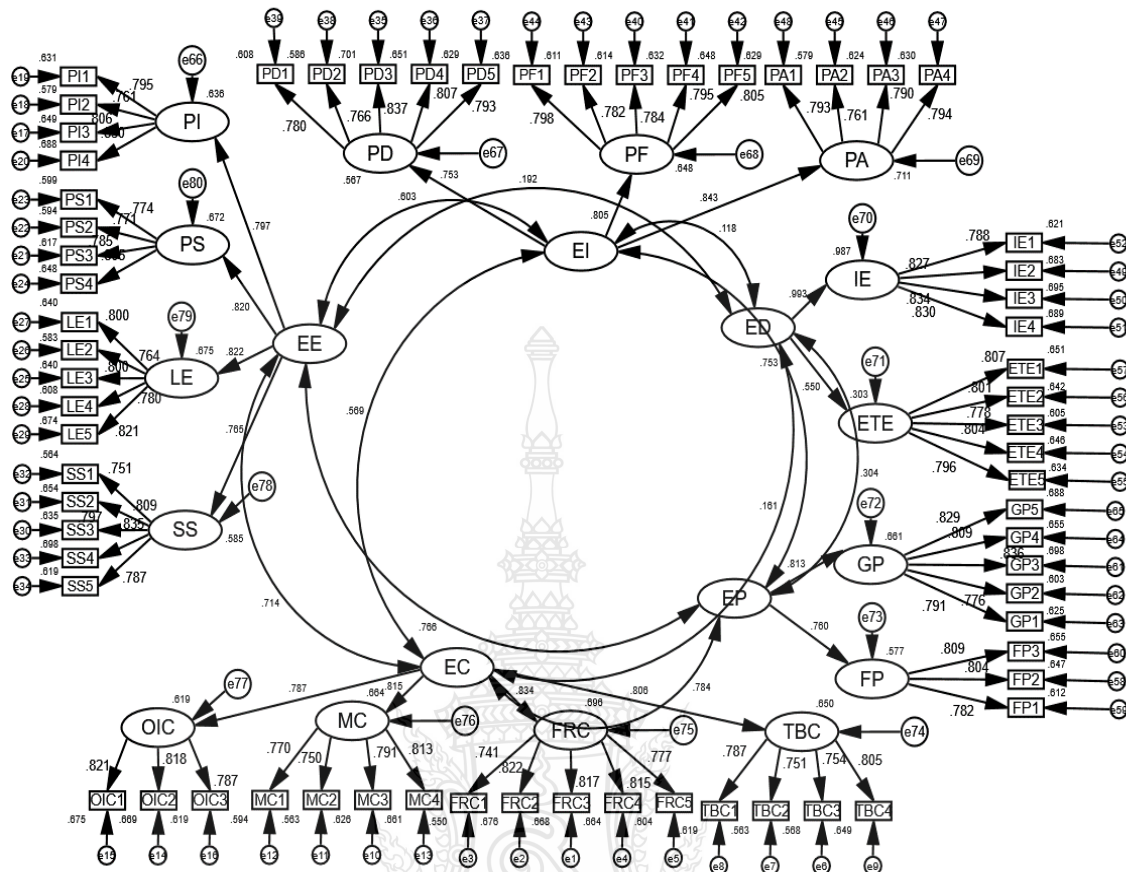


Figure 4.6 Confirmatory Factor Analysis for Measurement Model

Table 4.29 Model Fit for Measurement Model

Model Fit Criteria	Value	Acceptable level
χ^2/df	1.222	< 5
RMR	0.052	< 0.080
RMSEA	0.023	< 0.080
GFI	0.858	> 0.900
AGFI	0.846	> 0.900
NFI	0.873	> 0.900
TLI	0.973	> 0.900
CFI	0.974	> 0.900

Table 4.30 Convergent Validity of Measurement Model

Construct	Item	Factor Loading	CR	AVE
EE	PI	0.797	0.878	0.642
	PS	0.820		
	LE	0.822		
	SS	0.765		
EI	PD	0.753	0.843	0.642
	PF	0.805		
	PA	0.843		
EC	OIC	0.787	0.885	0.657
	MC	0.815		
	FRC	0.834		
	TBC	0.806		
EP	GP	0.813	0.765	0.619
	FP	0.760		
ED	ETE	0.550	0.770	0.644
	IE	0.993		

As was seen from the Table 4.24, the values of GFI, AGFI, and NFI were greater than 0.80, but they did not meet the standard of being greater than 0.90. However, through a literature review, it was found that, according to the studies of Steiger (1990) and Marsh et al. (1998), values of GFI, AGFI, and NFI greater than 0.80 were also acceptable. Therefore, the model fit indices were within an acceptable range. From the Table 4.25, all constructs factor loadings exceeded 0.70, CR values were greater than 0.60, and AVE values exceeded 0.50, indicating that the Second-order models demonstrated strong convergent validity.

4.8 Discriminant Validity Analysis

The assessment of discriminant validity is conducted in accordance with the Fornell & Larcker criterion. Specifically, Fornell and Larcker (1981) propose that the square root of the Average Variance Extracted (AVE) for each construct should exceed the inter-construct correlation coefficients. This condition, if met, signifies that the constructs are distinct and possess discriminant validity (Fornell & Larcker, 1981). In this

study, the First-order discriminant validity, as shown in Table 4.26, and the Second-order discriminant validity, as shown in Table 4.27.

In Tables 4.26 and 4.27, the bolded numbers in the diagonal rows represent the square root of the Average Variance Extracted (AVE) values between the first-order and second-order variables, respectively, while the numbers below the diagonal represent the correlation coefficients between each of the measured variables. The comparison in both tables reveals that the square root of the AVE for each of the measured variables is greater than the corresponding values in the matrix of correlation coefficients in the same row as well as in the columns. Therefore, it can be judged that the measurement scale used in this study has good discriminant validity.



Table 4.31 First-order Discriminant Validity (Fornell-Larcker Criterion)

	PD	PF	PA	OIC	MC	FRC	TBC	IE	ETE	FP	GP	PI	PS	LE	SS
PD	0.797														
PF	0.563	0.792													
PA	0.558	0.593	0.784												
OIC	0.228	0.231	0.345	0.809											
MC	0.294	0.325	0.406	0.562	0.782										
FRC	0.307	0.376	0.392	0.560	0.600	0.795									
TBC	0.296	0.256	0.362	0.541	0.579	0.580	0.775								
IE	0.069	0.041	0.048	0.017	0.083	0.076	0.064	0.820							
ETE	0.012	-0.014	0.013	-0.024	0.056	0.018	0.049	0.545	0.797						
FP	0.378	0.413	0.431	0.378	0.399	0.441	0.403	0.032	0.019	0.799					
GP	0.384	0.447	0.459	0.454	0.466	0.488	0.445	0.074	0.025	0.541	0.809				
PI	0.353	0.337	0.357	0.412	0.372	0.409	0.376	0.009	-0.074	0.385	0.444	0.798			
PS	0.342	0.341	0.330	0.363	0.386	0.401	0.386	0.105	0.012	0.399	0.493	0.600	0.784		
LE	0.349	0.327	0.343	0.427	0.373	0.465	0.433	0.053	0.030	0.380	0.458	0.577	0.597	0.793	
SS	0.328	0.334	0.412	0.450	0.395	0.440	0.429	0.068	0.047	0.383	0.433	0.528	0.524	0.573	0.796

Note: Diagonal numbers = Square root of AVE

Table 4.32 Second-order Discriminant Validity (Fornell-Larcker Criterion)

	EE	EI	EC	EP	ED
EE	0.754				
EI	0.496	0.756			
EC	0.604	0.457	0.756		
EP	0.589	0.561	0.607	0.737	
ED	0.187	0.104	0.169	0.210	0.749

Note: Diagonal numbers = Square root of AVE

4.9 Regression Analysis and Hypothesis Testing

4.9.1 Regression Analysis of EE on EP

Before testing the hypotheses, all variables in this study were centralized. The results of the hierarchical regression analysis are presented in Table 4.28. As shown in the table, the β value is 0.633, the SE value is 0.042, the T value is 14.990, and the P value is less than 0.000. Therefore, there is a significant positive relationship between EE and EP, with the total effect (TE) of EE on EP being 0.633.

Table 4.33 Regression Results for Total Effect of EE on EP

Outcome variable	Predictor variable	β	SE	T
EP	(Constant)	1.056	0.140	7.562***
	EE	0.633	0.042	14.990***
R ²	0.347			
ΔR^2	0.346			
F	224.706***			

Note: * denotes $P < 0.05$, ** denotes $P < 0.01$, *** denotes $P < 0.001$

4.9.2 Hypothesis Testing

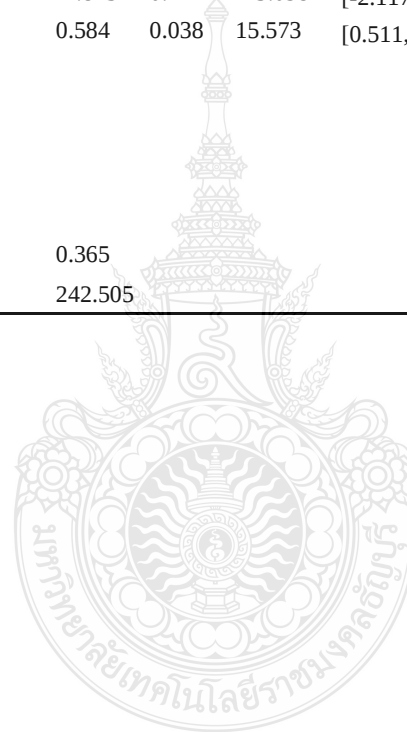
Following Hayes' (2013) testing method, EE was the independent variable (X), EP the dependent variable (Y), and ED the moderating variable (W), coded as 0 for low ED and 1 for high ED. EI (M1) and EC (M2) were the mediating variables. The moderated mediation model was tested using SPSS PROCESS macro (model 14). Based on Hayes' recommendations, 5000 bootstrap samples were used (Hayes, 2018). The model includes

a direct effect ($X \rightarrow Y$) and two indirect effects ($X \rightarrow M1 \rightarrow Y$, $X \rightarrow M2 \rightarrow Y$), with W moderating both ($X \rightarrow M1 \rightarrow Y$, $X \rightarrow M2 \rightarrow Y$) (Hayes, 2013). The results are presented in Tables 4.29 to 4.31, and the coefficients from Table 4.28 and Table 4.29 lead to the following estimated conceptual framework, as shown in Figure 4.7.



Table 4.34 Regression Results for Mediation Effect and Moderation Effect

Dependent Variable	EI				EC				EP			
	β	SE	T	95% CI	β	SE	T	95% CI	β	SE	T	95% CI
constant	-1.593	0.140	-11.383	[-1.868, -1.318]	-1.873	0.124	-15.098	[-2.117, -1.630]	2.180	0.152	14.314	[1.88, 2.479]
EE	0.497	0.042	11.740	[0.414, 0.580]	0.584	0.038	15.573	[0.511, 0.658]	0.272	0.047	5.848	[0.181, 0.364]
EI									0.297	0.042	7.164	[0.216, 0.379]
EC									0.335	0.047	7.147	[0.243, 0.428]
ED									0.002	0.037	0.064	[-0.070, 0.074]
EI*ED									0.174	0.045	3.849	[0.085, 0.263]
EC*ED									0.168	0.052	3.247	[0.066, 0.270]
R ²	0.246				0.365				0.556			
F	137.837				242.505				86.945			



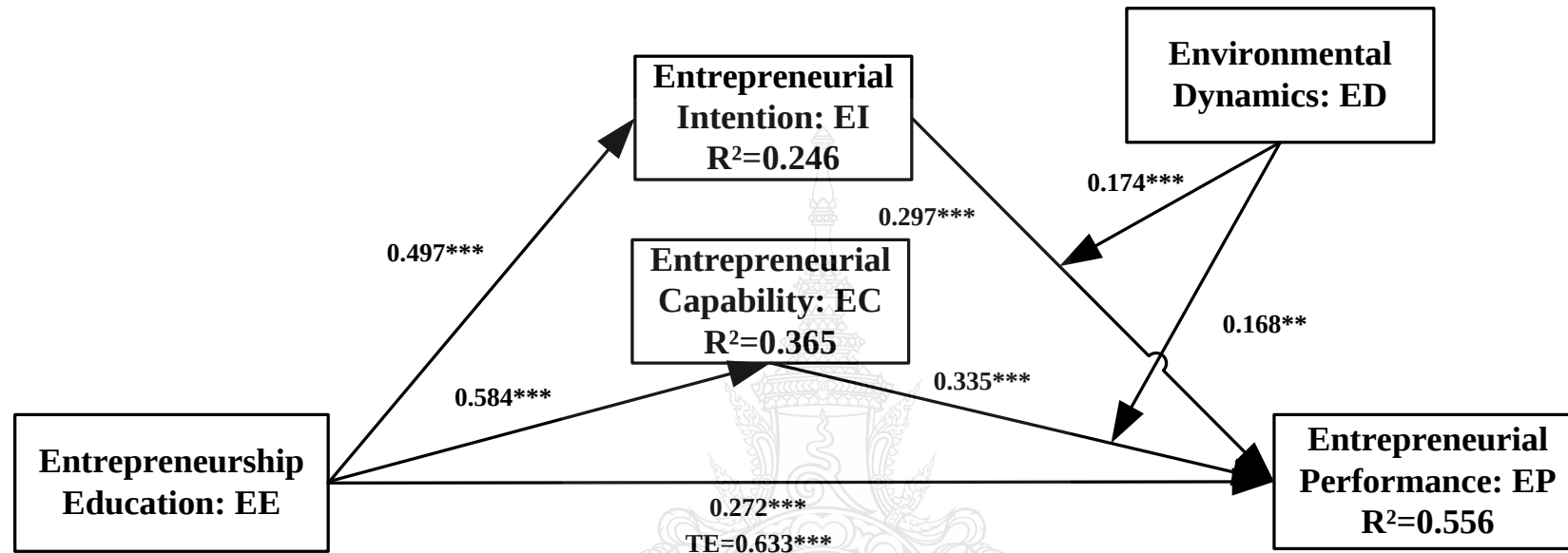


Figure 4.7 Estimated Conceptual Framework

4.9.2.1 Direct Effect Test

The analysis of the estimated framework (Figure 4.7) revealed that EE significantly influences EP, as evidenced by a total effect (TE) of 0.633. This effect size, being considerably larger than the 0.50 threshold for high effects (Hayes, 2017), suggests the presence of hidden variables mediating the impact of EE on EP. It's worth noting that effect sizes are typically categorized as small (0.10), medium (0.30), and large (0.50) (Hayes, 2017), with Chin (1998) suggesting 0.20 as the lower bound for substantial effects (Chin, 1998).

Upon introducing EI, EC as 2 parallel mediators, and ED as moderator, the total effect decreased to a direct effect (DE) of 0.272 and significant hence H1 was supported.

This reduction demonstrates the value of incorporating these additional variables into the EE→EP causal model. However, the persistent direct effect (DE) above 0.20 indicates that EE remains a strong predictor of EP, or potentially suggesting the existence of additional mediators yet to be explored (Chin, 1998).

In the estimated framework, all path coefficients demonstrate high values and statistical significance. This indicates that the causal relationships between variable pairs align well with the theoretical foundations. This strong empirical support allows for a confident exploration of the conditional path chains.

The analysis delves into the complex relationships among EE, EI, EC, EP, and ED. The following section will explore two conditional path chains.

4.9.2.2 Path Chain 1: $EE \rightarrow EI \rightarrow EP$ (Conditional upon ED)

The first path chain is: $EE \rightarrow EI \rightarrow EP$, conditional upon ED. The results are shown in Table 4.30.

From the table, it is clear that the total effect (TE) of EE on EP is 0.633 ($p < 0.001$), and the direct effect 1 of EE on EP is 0.272 ($p < 0.001$). This significant reduction in the effect of EE on EP after including EI as mediating variable indicates the crucial role this mediator plays.

Table 4.35 Conditional Indirect Effect of EE on EP through EI

Paths	Condition	Effect	Boot SE	Boot LLCI	Boot ULCI
Indirect effect 1 EE→EI→EP	Low ED	0.074	0.037	0.004	0.147
	Medium ED	0.148	0.023	0.104	0.195
	High ED	0.221	0.022	0.18	0.265
Index of Moderated Mediation					
	Index		Boot SE	Boot LLCI	Boot ULCI
	0.086		0.023	0.045	0.133
Direct effect EE→EP		0.272	0.047	0.181	0.364
Total effect EE→EP		0.633	0.042		

This chain reveals a compelling pattern: as the level of ED increases, stronger conditional effects are observed throughout the path. Importantly, all points along this path demonstrate statistical significance.

When ED is at its medium value ($ED = 0$), this finding provides robust evidence that EI serves as a crucial mediator in the relationship between EE and EP.

The interplay of these three effects (EE, EI, and EP) illuminates a critical insight: higher levels of ED amplify the positive effects of EE on EP, with this effect being mediated through EI. In other words, as the business environment becomes more dynamic and unpredictable, the impact of EE on EP becomes stronger, particularly when it successfully cultivates EI in students.

Meanwhile, further statistical support for this relationship is provided in Table 4.30. The index of moderated mediation is calculated at 0.086 and is statistically significant. This indicates that ED plays a crucial role in modulating the sequential effect observed in this path chain. Essentially, the strength of the mediation effect ($EE \rightarrow EI \rightarrow EP$) varies depending on the level of ED.

Based on this comprehensive analysis, it can be confidently concluded that hypotheses H2 and H2a are strongly supported by the data. This finding highlights the critical role of ED in modulating the relationships between EE, EI, and EP.

4.9.2.3 Path Chain 2: $EE \rightarrow EC \rightarrow EP$ (Conditional upon ED)

The second path chain is: $EE \rightarrow EC \rightarrow EP$, conditional upon ED. The results are shown in Table 4.31.

From the table, it is clear that the total effect (TE) of EE on EP is 0.633 ($p < 0.001$), and the direct effect 2 of EE on EP is 0.272 ($p < 0.001$). This significant reduction in the effect of EE on EP after including EC as mediating variable indicates the crucial role this mediator plays.

Table 4.36 Conditional Indirect Effect of EE on EP through EC

Paths	Condition	Effect	Boot SE	Boot LLCI	Boot ULCI
Indirect effect 2 $EE \rightarrow EC \rightarrow EP$	Low ED	0.112	0.043	0.024	0.196
	Medium ED	0.196	0.029	0.14	0.254
	High ED	0.279	0.03	0.225	0.341
Index of Moderated Mediation					
	Index		Boot SE	Boot LLCI	Boot ULCI
	0.098		0.027	0.048	0.155
Direct effect $EE \rightarrow EP$		0.272	0.047	0.181	0.364
Total effect $EE \rightarrow EP$		0.633	0.042		

Same as the first chain, higher levels of ED correspond to stronger conditional effects throughout this path. All points demonstrate statistical significance. When ED is at its medium value ($ED = 0$), it provides strong evidence that EC acts as a mediator in this relationship.

The analysis of this path reveals another crucial insight: increasing levels of ED enhance the effectiveness of EE in improving EP, this time mediated through EC. In other words, as the business environment becomes more dynamic, the impact of EE on EP is amplified, particularly when it successfully develops entrepreneurial capabilities in students.

As with the first path chain, Table 4.31 provides further statistical corroboration for this relationship. The index of moderated mediation is 0.098 and statistically significant, mirroring the result from the first path chain. This reinforces the notion that ED plays a vital role in influencing the sequential effect observed in this path chain as well.

Based on this thorough analysis, it can be asserted with confidence that hypotheses H3 and H3a are strongly supported by the empirical evidence. This finding highlights the critical role of ED in modulating the relationships between EE, EC, and EP.

4.9.2.4 Comparing Path Chain 1 and Path Chain 2

The analysis of Path Chain 1 ($EE \rightarrow EI \rightarrow EP$, conditional upon ED) and Path Chain 2 ($EE \rightarrow EC \rightarrow EP$, conditional upon ED) reveals that as ED increase, the impact of EE on EP through both EI and EC becomes stronger. Regarding the moderated mediation index, Path Chain 1 has an index of 0.086, while Path Chain 2 has an index of 0.098. Although both indices indicate a significant moderating effect of ED on the mediation effect within these paths, the effect is slightly stronger for Path Chain 2. This suggests that at higher levels of ED, EC as a mediating variable has a more pronounced effect than EI and should be chosen prior to EI or more focus on EC than EI.

4.10 Qualitative Results

This study employs in-depth interviews as the qualitative research method, focusing on subjective experiences and participants' perspectives throughout the research process. Researchers utilize induction, interpretation, and thematic analysis during the analysis phase to deeply explore the data with the goal of extracting significant insights and patterns.

4.10.1 Data Collection and Preparation

Purposive sampling refers to a set of non-probability sampling techniques where units are selected based on specific characteristics needed for the sample. In other words, purposive sampling involves intentionally selecting units. This method, also known as judgmental sampling, relies on the researcher's discretion to identify and choose individuals, cases, or events that are best suited to provide the most relevant information

for achieving the research objectives (Robinson, 2014). This study employs purposive sampling, selecting student entrepreneurs who had already started their own business and entrepreneurship education teachers or experts from various types of universities for in-depth interviews. Based on recommendations from experts in qualitative research, a sample size of 8-12 participants is generally sufficient for in-depth interviews when examining specific issues within a particular group (Guest, Bunce, & Johnson, 2006). This study selected 8 participants for in-depth interviews, meeting the sample size requirements.

4.10.2 Demographic Data from the Interviews

Table 4.32 presents the basic information of the interviews. 8 participants were involved in this study, including 4 of them are university students who have successfully started businesses, and 4 of them are entrepreneurship education teachers or experts. All participants represent four different types of higher education institutions. Among them, five were male and three were female, aged between 20 to 45, most of the entrepreneurs are primarily engaged in traditional manufacturing, and trade/service sectors.

Table 4.37 Demographic Data for Interviews

Number	Gender	Age	Nature of university	Industry of the Enterprise	Status
P1	Male	20	HEIs under Central Ministries and Agencies	Finance	Student
P2	Male	25	Academic HEIs	Trade/Services	Student
P3	Female	26	Professional HEIs	Traditional Manufacturing	Student
P4	Male	25	Vocational HEIs	Traditional Manufacturing	Student
P5	Male	31	Academic HEIs	\	Teacher
P6	Female	45	HEIs under Central Ministries and Agencies	\	Teacher
P7	Male	42	Professional HEIs	\	Teacher
P8	Female	39	Vocational HEIs	\	Teacher

4.10.3 Data Coding and Analysis

This study employed the grounded theory methodology to code interview transcripts in the sequence of open coding, axial coding, and selective coding. When the 8th participant was interviewed, the researcher noted that no new coding content emerged. Subsequently, three additional participants were interviewed to verify data saturation, and the results indicated no new indicators. This indicates that the coding content has reached saturation, and the study demonstrates reliability and validity.

4.10.3.1 Preliminary analysis based on word cloud and word frequency

The data from eight in-depth interviews were imported into NVivo 12.0 Plus, and the "word frequency query" was run and then stopped, yielding results as shown in Figure 4.8. The visualization of the word cloud analysis clearly and naturally presents the most frequently occurring terms in the text. The font size in the figure corresponds to the frequency of each word occurrence, where larger fonts indicate higher frequencies of attention (John, Marbach, Lohmann, Heimerl, & Ertl, 2018). The keywords that appeared more frequently reflected the topical issues that were of most concern in the in-depth interviews and were the focus of this study.



Figure 4.8 Source Data Word Cloud Analysis Diagram

According to the word cloud analysis results, the most frequently occurring keywords include "education," "Entrepreneurship," "entrepreneurial," "students," "courses," "practical," "performance," "intention," "entrepreneurs," and "capabilities." Furthermore, based on the word frequency query function, the top fifteen most frequently appearing words have been listed in Table 4.33.

Table 4.38 Results of Lexical Analysis

Serial number	Word	Frequency	Weight Percentage (%)
1	education	200	4.86
2	entrepreneurship	147	4.14
3	entrepreneurial	128	3.60
4	students	93	2.62
5	courses	74	1.82
6	practical	87	1.76
7	performance	66	1.47
8	intention	57	1.40
9	entrepreneur	49	1.36
10	university	60	1.34
11	capabilities	49	1.27
12	support	68	1.25
13	provide	52	1.18
14	Needs	54	1.10
15	Making	83	1.05

In the table, Frequency refers to the total number of times a specified word appears across all texts, calculated using the formula: $\sum_{i=1}^n =$ Count of the Specific Word in Document_i. Weight Percentage is typically used to show the relative importance or frequency of occurrence of a specific word in the selected data. The calculation formula is:

$$\text{Weight Percentage} = \frac{\text{Frequency of the Specific Word}}{\text{Total Number of All Words in the Documents}} \times 100\%$$

According to the data in Table 4.33, "education, practical, courses, intention, capabilities, performance, etc." are the main factors that affect entrepreneurial performance. These data results provide a foundation for future research.

4.10.3.2 Open Coding

Open coding involves breaking down the original data and reassembling it in new ways. Using the NVivo 12 Plus analysis software, new free nodes are created for relevant content in each interview transcript, and coding is performed one by one. During the coding process, each interview transcript is analyzed line by line, ensuring that all codes are rooted in the interview data, preserving the original sentences as much as possible. This requires the researcher to avoid preconceived notions, maintain an open and objective mindset, and suspend personal biases and hypotheses. This allows for the emergence of any new concepts or theories from the data. All data are coded and reassembled according to their original state, with continuous comparison and analysis to ensure accuracy and objectivity. Any ambiguous information in the interview data that cannot be reasonably inferred is excluded as invalid coding. Ultimately, 184 free nodes are formed. These nodes are then consolidated into single nodes based on similar meanings, considering specialized terminology carefully, resulting in 20 free nodes. For example: "While theoretical instructors receive professional training, they often lack practical entrepreneurial experience. To improve the quality of entrepreneurial education, it is essential to raise the qualification standards for entrepreneurship educators," referred to in P1 as "Enhancing Faculty Strength."

4.10.3.3 Axial Coding

Axial coding is more focused, selective, and conceptual compared to initial coding. Focused coding requires identifying which initial codes best analyze the data accurately and comprehensively. In NVivo 12 Plus, all initial codes and their corresponding raw data were repeatedly compared. Similar nodes were renamed and merged, while unrelated or weakly related codes were deleted. Further summarizing and classifying the preliminary scheme from open coding led to the identification of 6 concepts: "national level, student level, university level, entrepreneurial capability, entrepreneurial intention, and environmental factor."

4.10.3.4 Selective Coding

Selective coding is a crucial part of final theoretical construction. It involves identifying core categories that are overarching, highly abstract, and capable of encompassing related concepts on a broader level. Similar influencing factors are selected and grouped, with their relationships further integrated and classified, resulting in two core categories: factors affecting entrepreneurial performance of entrepreneurial college students in university and the future direction for entrepreneurship education. The above coding processes are interwoven and carried out throughout the entire research.

4.10.3.5 Generating Hierarchy Diagram and Generating Relational Logic Model

Based on the relationships established through coding, this study created a hierarchical diagram to illustrate the correlation in data analysis. This technique identifies and analyzes various patterns in encoded data, employing a method to display word frequencies (Goyal & Deshwal, 2023). The study utilizes dendrograms, schematic diagrams that present hierarchical data as nested rectangles of varying sizes, providing a comprehensive view to analyze the structure and compare relative sizes of different aspects of the data. As depicted in Figure 4.9, the comparison of node code counts across categories in the visualization project emphasizes the research theme of this study on the impact of entrepreneurial education on startup performance and determines future directions for entrepreneurial education development. The Figure 4.9 compares the number of reference points for different codes to identify prominent themes within the project. The more extensive the coding, the larger the area represented. Subcodes are nested within parent codes. The image illustrates that among the factors influencing entrepreneurial performance, "entrepreneurial intention" and "entrepreneurial capability" occupy a significant portion of the area. Within the factors affecting entrepreneurial intention, "Entrepreneurial Ideals" and "Entrepreneurial Personality Traits" have larger areas. For entrepreneurial capability, "Management Capability" and "Opportunity Identification" cover a more substantial portion. Regarding factors affecting entrepreneurship education, "The Learning Outcomes are Quite Good" has the largest area, while in the category of environmental factors, "Other External Factors" occupies

the largest space. This suggests that these larger factors significantly impact their respective parent codes.

Additionally, in the survey on the future development directions of entrepreneurship education, factors at the university level play a crucial role. Specifically, "Improve the Course System" and "Strengthening the Faculty" are areas where universities should focus their efforts. At the national level, there is a need to strengthen policy advocacy," while at the individual level, emphasis should be placed on improving learning attitude.

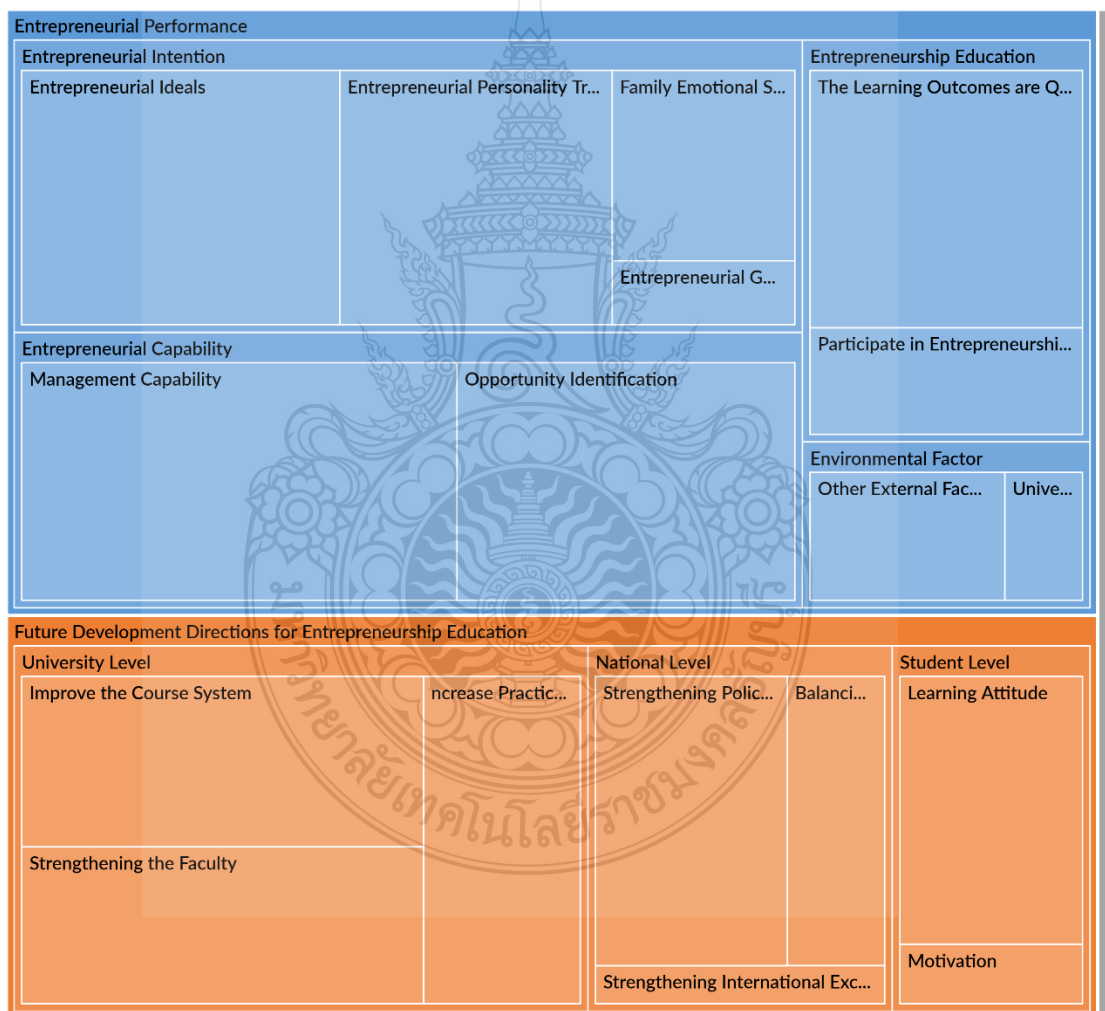


Figure 4.9 Hierarchy Diagram

Simultaneously, this study established a relational logic model, as depicted in Figure 4.10. Figure 4.10 illustrates the relationship between entrepreneurship education, entrepreneurial capabilities, entrepreneurial intentions, environmental factors, and entrepreneurial performance.

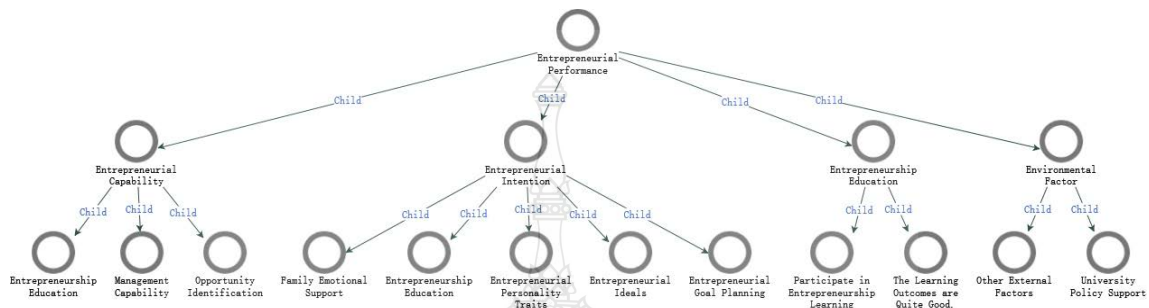


Figure 4.10 Relationship Logic Model Diagram

The diagram presents a hierarchical model of factors influencing entrepreneurial performance. This top-level concept is broken down into several sub-nodes, each representing a category of factors contributing to entrepreneurial outcomes. Both entrepreneurial capability and entrepreneurial intention are shown as key direct influencing factors, indicating a dual-pathway model where skills, capabilities and intentions, motivation are crucial. Entrepreneurship education is emphasized under multiple nodes, highlighting its foundational role in developing both competencies and intentions, as well as enhancing entrepreneurial performance. Environmental factors, as external influences, suggest that both internal qualities (such as intentions and capabilities) and external conditions are critical to entrepreneurial success. The nested structure of each factor implies that while top-level factors (such as capability, intention, education, and environmental factors) are direct influencers, their sub-nodes provide detailed sub-components of these top-level categories. Overall, the diagram provides a detailed overview, demonstrating how various factors and sub-factors collectively contribute to entrepreneurial performance, emphasizing the interconnections between education, capability, intention, and external influences.

4.10.3.6 Statistical Analysis of Related Factors

According to the subordinate structure formed by the three-level coding in grounded theory, the reference points of a first-level node depend on the sum of the reference points of its subordinate nodes and itself (Silver & Woolf, 2017). In this study, there are two first-level nodes, seven second-level nodes, and twenty third-level nodes. The relevant elements of each node have been enumerated, as shown in Table 4.34.

Table 4.39 Correlation Factor Statistics

Primary node	Secondary node	Tertiary node	Frequency	Percentage
Entrepreneurial Performance	Entrepreneurial Capability	Entrepreneurship Education	17	9.24%
		Management Capability	18	9.78%
		Opportunity Identification	14	7.61%
		Entrepreneurship Education	17	9.24%
	Entrepreneurial Intention	Entrepreneurship Education	2	1.09%
		Goal Planning	14	7.61%
		Entrepreneurial Ideals	12	6.52%
		Entrepreneurial Personality Traits	6	3.26%
	Entrepreneurship Education	Family Emotional Support	5	2.72%
		Participate in Entrepreneurship Learning	12	6.52%
		The Learning Outcomes are Quite Good.	2	1.09%
		University Policy Support	5	2.72%
	Environmental Factor	Other External Factors	5	2.72%
		Balancing Education Resources	2	1.09%
		Strengthening International Exchanges	10	5.43%
		Strengthening Policy Advocacy		
Future Development Directions for Entrepreneurship Education	National Level			

Table 4.40 Correlation Factor Statistics (Cont.)

Primary node	Secondary node	Tertiary node	Frequency	Percentage
	Student Level	Learning Attitude	9	4.89%
		Motivation	2	1.09%
	University Level	Improve the Course System	12	6.52%
		Increase Practical Content	9	4.89%

In Table 4.34, factors mentioned with higher frequency are considered more influential, indicating their greater impact on college students' innovation and entrepreneurial capabilities. Among the "Tertiary node" factors, "Entrepreneurship Education" and "Management Capability" are cited most frequently, appearing 17 and 18 times respectively. These are followed by "Opportunity Identification" and "Entrepreneurial Ideals," each mentioned 14 times. These factors fall under the "Secondary nodes" of "Entrepreneurial Capability" and "Entrepreneurial Intention," highlighting their crucial roles in influencing the entrepreneurial performance of university students.

Furthermore, "Entrepreneurial Capability" is referenced more frequently than "Entrepreneurial Intention" and "Environmental Factor," indicating its stronger influence on entrepreneurial performance. However, the impact of environmental factors appears relatively weaker, as evidenced by "University Policy Support" being mentioned twice and "Other External Factors" being mentioned five times.

In the survey on the future directions for entrepreneurship education, we found that "Improve the Course System," "Increase Practical Content," "Strengthening the Faculty," "Strengthening Policy Advocacy," and "Learning Attitude" are prioritized factors. Notably, "Improve the Course System," "Increase Practical Content," and "Strengthening the Faculty" are categorized under the "University Level," suggesting that institutional-level changes are vital for the future development of entrepreneurship education.

The above content represents the results of the in-depth interview data analysis, with a detailed discussion to follow in the next chapter.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

In the preceding chapters, the research question proposed in this study was empirically examined through a comprehensive review of the literature, questionnaire surveys, data analysis, and in-depth interviews. This chapter presents the conclusions drawn regarding the impact of entrepreneurship education on entrepreneurial performance based on the study's findings. Additionally, it discusses the research findings, research limitations, theoretical contributions, and practical implications of the study.

5.1 Conclusions

Based on the Theory of Planned Behavior and Self-Efficacy Theory, this study combines theoretical analysis with empirical research to examine the complex relationships between entrepreneurship education, entrepreneurial intention, entrepreneurial capability, and entrepreneurial performance under varying levels of environmental dynamics. The primary research question posed is: How do entrepreneurial intention (EI) and entrepreneurial capability (EC) mediate the relationship between entrepreneurship education (EE) and entrepreneurial performance (EP) under varying levels of environmental dynamics (ED)? To answer this question, this study sets the following specific research objectives:

- (1) To examine the relationship between entrepreneurship education and entrepreneurial performance.
- (2) To explore the impact of entrepreneurship education on entrepreneurial performance through entrepreneurial intention and entrepreneurial capability, and compare the differences in their mediating effects.
- (3) To investigate the impact of entrepreneurship education on entrepreneurial performance through entrepreneurial intention and entrepreneurial capability under the varying conditions of the environmental dynamics.

To achieve these objectives, this study constructs a research model that examines the impact of entrepreneurship education on entrepreneurial performance, with

entrepreneurial intention and entrepreneurial capability serving as parallel mediating variables, and environmental dynamics as a moderating variable. Within this conceptual framework, five hypotheses are proposed: H1: Entrepreneurship education has a positive impact on entrepreneurial performance. H2: The indirect effects of entrepreneurship education on entrepreneurial performance through entrepreneurial intention are moderated by varying levels of environmental dynamics. H2a: Entrepreneurial intention mediates the effects of entrepreneurship education on entrepreneurial performance. (Note: Effect = $a_1 \cdot (b_1 + b_4 \cdot ED)$, so when $ED = 0$, the Effect = $a_1 \cdot b_1$). H3: The indirect effects of entrepreneurship education on entrepreneurial performance through entrepreneurial capability are moderated by varying levels of environmental dynamics. H3a: Entrepreneurial capability mediates the effects of entrepreneurship education on entrepreneurial performance. (Note: Effect = $a_2 \cdot (b_2 + b_5 \cdot ED)$, so when $ED = 0$, the Effect = $a_2 \cdot b_2$).

To test these hypotheses, the study uses both qualitative and quantitative research methods. The following sections summarize the findings of the quantitative and qualitative analyses.

5.1.1 Quantitative Research

In the quantitative research phase, a questionnaire survey was conducted among entrepreneurial university students, and a two-stage sampling method was used to distribute 600 questionnaires across different categories of universities, as classified by Ministry of Education of the People's Republic of China. A total of 424 valid responses were collected. Descriptive statistics and reliability testing were conducted using IBM SPSS 21.0, while AMOS 24 was used for confirmatory factor analysis to assess the validity of the questionnaire. Hypotheses were tested using the PROCESS macro in SPSS 21.0, which allows for the examination of complex models and interactions, providing comprehensive insights into the proposed hypotheses.

The results indicate that after introducing entrepreneurial intention and entrepreneurial capability as parallel mediating variables, the direct effect of entrepreneurship education on entrepreneurial performance decreased from 0.633 to 0.272, yet remained significant, confirming that entrepreneurship education positively influences entrepreneurial performance. Thus, hypothesis H1 is supported. Further

analysis reveals that entrepreneurial intention and entrepreneurial capability play significant mediating roles in the relationship between entrepreneurship education and entrepreneurial performance, and that these mediation effects increase with higher levels of environmental dynamics. This indicates that under high environmental dynamics, the impact of entrepreneurship education on entrepreneurial performance through entrepreneurial intention and entrepreneurial capability is enhanced. This supports hypotheses H2, H2a, H3, and H3a. These findings suggest that in dynamic and unpredictable business environments, the impact of entrepreneurship education on the performance of university student entrepreneurs is more pronounced, especially when it effectively cultivates their entrepreneurial intention and capability.

By comparing the two indirect pathways with entrepreneurial intention and entrepreneurial capability as parallel mediating variables, it is evident that while the impact of entrepreneurship education on entrepreneurial performance is enhanced through both entrepreneurial intention and entrepreneurial capability as environmental dynamics increase, entrepreneurial capability demonstrates a stronger mediating effect at higher levels of environmental dynamics. This indicates that in more dynamic environments, entrepreneurial capability as a mediating variable plays a more crucial role in enhancing entrepreneurial performance than entrepreneurial intention.

In conclusion, the findings of this study emphasize the critical role of environmental dynamics in influencing the effectiveness of entrepreneurship education. This suggests that educators and policymakers should consider the potential impact of environmental changes when designing and implementing entrepreneurship education programs. Future research could further explore other mediating and moderating factors under different environmental conditions to fully understand how entrepreneurship education functions in various contexts. These findings provide not only empirical support for theoretical research in entrepreneurship education but also practical guidance for improving entrepreneurial performance.

5.1.2 Qualitative Research

This study examines the factors influencing the entrepreneurial performance of university students by conducting interviews with eight participants, including four university students who have successfully launched businesses and four experts in

entrepreneurship education. These participants represent four different types of higher education institutions. Using NVivo 12.0 Plus software, the study performed word cloud and word frequency analyses, revealing that the most frequently occurring keywords were "education," "entrepreneurship," "entrepreneurial," "students," "courses," "practical," "performance," "intention," "entrepreneurs," and "capabilities." These keywords highlight the main issues of concern in the interviews, representing key factors affecting entrepreneurial performance and serving as the focal points of this research.

Further analysis was conducted using NVivo 12.0 Plus with a grounded theory approach, involving three levels of coding: open coding, axial coding, and selective coding. Open coding generated 184 free nodes, which were consolidated into 20 nodes based on their similarities. Axial coding identified seven key concepts: national level, student level, university level, entrepreneurial capability, entrepreneurial intention, entrepreneurship education, and environmental factor. Selective coding further refined these into two core categories: factors influencing the entrepreneurial performance of university students and the future directions for entrepreneurship education.

Based on the coding, this study developed a hierarchical diagram (Figure 4.6) and a relational logic model (Figure 4.7). The combined analysis of Figures 4.6 and 4.7 underscores the critical importance of entrepreneurship education, entrepreneurial intention, and entrepreneurial capability in enhancing entrepreneurial performance. Both "entrepreneurial intention" and "entrepreneurial capability" serve as significant pathways through which entrepreneurship education influences entrepreneurial performance. These findings reinforce the conclusions from the quantitative research, emphasizing that a comprehensive entrepreneurship education program that enhances both entrepreneurial intention and capability is crucial for improving entrepreneurial performance.

Additionally, the interviews explored the future directions for entrepreneurship education. At the national level, the Chinese government should focus on balancing educational resources across regions, strengthening international exchange and cooperation, and further promoting the implementation of entrepreneurship policies. At the student level, university students should adjust their learning motivations and attitudes, actively engage in learning, and enhance their entrepreneurial intentions. At the university level, institutions should strengthen curriculum development, improve the

structure of entrepreneurship education, increase practical content, and integrate entrepreneurship education into various disciplines and majors.

5.2 Discussion

This section explores the theoretical background and findings of this study to further understand and address the research questions posed in this study. In order to achieve the objectives of this study, the researcher developed the research question through literature review and in-depth interviews: How do entrepreneurial intention (EI) and entrepreneurial capability (EC) mediate the relationship between entrepreneurship education (EE) and entrepreneurial performance (EP) under varying levels of environmental dynamics (ED)? The following section provides a detailed discussion of the research question from three perspectives.

5.2.1 Discussion of Direct Effects Entrepreneurship Education on Entrepreneurial Performance

The research findings indicate a positive correlation between entrepreneurial education and entrepreneurial performance. Entrepreneurial education can provide students with the foundational knowledge, skills, and methodologies necessary for entrepreneurship. Through the process of receiving entrepreneurial education, entrepreneurs can understand the entrepreneurial process from theoretical education and acquire relevant theoretical knowledge in management, finance, risk perception, and control. This rich theoretical knowledge will have a significantly positive impact on their entrepreneurial behavior development because correct or incorrect analysis and judgment of the market and industry can directly affect entrepreneurial success, thereby enhancing entrepreneurial performance. Additionally, through participating in entrepreneurial practices, they can also gain opportunities to interact with high-quality human resources such as senior managers, successful entrepreneurs, and bankers, making it easier to access new, high-quality information in the early stages and promoting students' understanding of entrepreneurship, learning in entrepreneurial training, and facilitating the development of entrepreneurial skills and the improvement of entrepreneurial performance. Moreover, entrepreneurship education can also stimulate students' willingness to participate in entrepreneurial activities through forms such as entrepreneurial competitions and

projects, allowing them to personally experience the difficulties and joys of entrepreneurship, thus fostering students' entrepreneurial awareness and entrepreneurial qualities. At the same time, support measures provided by universities, such as entrepreneurial resources, guidance, and entrepreneurial bases, can effectively promote the effectiveness of student entrepreneurship education and improve students' entrepreneurial performance levels. These findings are consistent with the research results of scholars such as Falck et al. (Falck, Heblich, & Luedemann, 2012; Rasmussen & Sørheim, 2006; Thompson, 2005).

In the qualitative study, we found that the terms "education," "courses," and "practical" appeared frequently, indirectly indicating the importance of entrepreneurship education on entrepreneurial performance. Additionally, in-depth interviews revealed that university students participating in entrepreneurship education could network with entrepreneurial partners, secure funding, and access valuable connections, all of which are crucial for entrepreneurs.

The results of this study provide empirical support for hypothesis H1, confirming that entrepreneurial education is a key factor influencing entrepreneurial performance and strengthening the crucial role of entrepreneurial education in improving entrepreneurial performance.

5.2.2 Discussion the Indirect Effects of Entrepreneurship Education on Entrepreneurial Performance through Entrepreneurial Intention were Changed Subject to Varying Levels of Environmental Dynamics.

The second part of the discussion is: The Indirect Effects of Entrepreneurial Education on Entrepreneurial Performance through Entrepreneurial Intention were Changed Subject to Varying Levels of Environmental Dynamics. In this section, two hypotheses, H2 and H2a, are proposed. The results of these two hypotheses indicate that entrepreneurial intention functions as a mediator between entrepreneurship education and entrepreneurial performance, with environmental dynamics playing a positive moderating role in this indirect effect. Additionally, as the level of environmental dynamics increases, the strength of the indirect effect also intensifies.

Entrepreneurship education plays a critical role in shaping entrepreneurial intention among university students. Through structured programs, students acquire

essential knowledge, skills, and a sense of self-efficacy related to entrepreneurship. As noted by Nowiński et al. (2019), entrepreneurship education enhances students' understanding of the entrepreneurial process by providing theoretical foundations, case analyses, and practical opportunities. This not only boosts their confidence in pursuing entrepreneurship but also helps them better assess personal resources and opportunities, thereby strengthening their self-efficacy (Nowiński, Haddoud, Lančarič, Egerová, & Czeglédi, 2019). An increased sense of self-efficacy leads to more decisive action when making entrepreneurial decisions, heightening their intention to engage in entrepreneurial activities. Moreover, practical experiences, such as participation in entrepreneurship competitions and hands-on projects, can ignite students' entrepreneurial passion, further intensifying their entrepreneurial intention (Fiet, 2001; Jones & Iredale, 2010; Krueger Jr & Brazeal, 1994). Therefore, by providing knowledge and enhancing self-efficacy, entrepreneurship education serves as a powerful tool for fostering entrepreneurial intention.

Entrepreneurial intention, as an individual's subjective inclination to engage in entrepreneurial activities, plays a direct role in driving entrepreneurial behavior. Studies have shown that entrepreneurial intention is a crucial predictor of entrepreneurial actions (Wang, 2013), and a heightened intention leads individuals to invest more resources and take more proactive steps in the entrepreneurial process (Nabi et al., 2017). When students possess a strong entrepreneurial intention, they not only become more proactive in identifying market opportunities but also actively participate in integrating entrepreneurial resources, thereby improving their entrepreneurial performance. Importantly, a strong entrepreneurial intention empowers students to overcome various challenges in the entrepreneurial journey and continuously learn and adapt to achieve business growth (Ahuja, Akhtar, & Wali, 2019). Moreover, the social networks established through entrepreneurship education, such as connections with mentors, peers, and successful entrepreneurs provide valuable resources and information that further support their entrepreneurial endeavors. As a result, entrepreneurial intention drives resource allocation and proactive behavior, making it a critical factor in enhancing entrepreneurial performance (Emami, Ashourizadeh, & Packard, 2023).

High environmental dynamics amplify the impact of entrepreneurship education on entrepreneurial performance through entrepreneurial intention. In dynamic environments, entrepreneurs face more opportunities and challenges. Rapid market changes and uncertainties may present greater opportunities for innovation and market expansion, allowing entrepreneurs to identify opportunities and create pathways for their ventures, which in turn stimulates their entrepreneurial intention (Zhang, & Zhang, 2018). In this context, entrepreneurship education plays a critical role by not only helping entrepreneurs develop the ability to recognize opportunities but also enhancing their confidence, making them believe in their capability to launch and operate a business in complex environments. The knowledge and skills acquired through entrepreneurship education significantly boost entrepreneurial intention, making entrepreneurs more proactive and prepared to navigate dynamic environments (Kolvereid & Isaksen, 2006). This education fosters not only innovative thinking but also flexibility in responding to uncertainties and rapid changes.

5.2.3 Discussion the Indirect Effects of Entrepreneurship Education on Entrepreneurial Performance through Entrepreneurial Capability were Changed Subject to Varying Levels of Environmental Dynamics

The third part of the discussion is: The Indirect Effects of Entrepreneurship Education on Entrepreneurial Performance through Entrepreneurial Capability were Changed Subject to Varying Levels of Environmental Dynamics. In this section, two hypotheses, H3 and H3a, are proposed. The results of these two hypotheses indicate that entrepreneurial capability functions as a mediator between entrepreneurship education and entrepreneurial performance, with environmental dynamics playing a positive moderating role in this indirect effect. Additionally, as the level of environmental dynamics increases, the strength of the indirect effect also intensifies.

Entrepreneurship education provides students with essential entrepreneurial knowledge and skills that are critical in building entrepreneurial capability. Through both theoretical and practical learning, students gain insights into various aspects of entrepreneurship, including management, innovation, market analysis, and risk management. These skills not only help students understand the entrepreneurial process but also equip them to develop strategies for handling business challenges. Universities,

through structured curricula, mentoring, and extracurricular activities such as entrepreneurship competitions, create an environment that fosters entrepreneurial capability (Garavan & Barra, 1994; Garavan & O' Cinneide, 1994).

By engaging in entrepreneurship education, students acquire the tools to identify and leverage opportunities, which is essential for their entrepreneurial journey. The learning environment within universities allows students to experiment, innovate, and apply theoretical concepts in real-world situations. This continuous learning cycle helps students build a solid entrepreneurial mindset and skill set, preparing them to face dynamic market conditions (Rasmussen et al., 2011). Ultimately, universities play a central role in facilitating the development of entrepreneurial capability, directly influencing how students' approach and manage their entrepreneurial endeavors (Oosterbeek, Van Praag, & Ijsselstein, 2010).

As students develop stronger entrepreneurial capability, they become more adept at integrating resources, leading teams, and making strategic decisions. These enhanced capabilities directly translate into improved entrepreneurial performance, as students are better equipped to manage business complexities and respond to market changes (Sancho, Ramos-Rodriguez, & Vega, 2022). Key entrepreneurial skills such as opportunity identification, market analysis, and innovation are critical in creating value and achieving business growth. Entrepreneurs with high levels of entrepreneurial capability can implement effective business strategies, foster collaboration, and enhance team performance, which collectively contribute to higher entrepreneurial success.

Additionally, students who participate in entrepreneurship education often gain access to valuable networks, including mentors, successful entrepreneurs, and industry experts. These connections provide insights and support that are essential for business success, particularly in securing funding, navigating challenges, and expanding market reach. By continuously refining their entrepreneurial capabilities through education and experience, students can mitigate risks, capitalize on market opportunities, and enhance their overall entrepreneurial performance (Withers et al., 2011; Yin, 2019; Zhang et al., 2009). Consequently, entrepreneurial capability serves as a strong mediator between entrepreneurship education and entrepreneurial performance, confirming the positive indirect effects observed in the research. In the qualitative research, respondents also

emphasized the importance of entrepreneurial capability on entrepreneurial performance, particularly opportunity identification and management capability, providing strong support for the above viewpoints.

The role of entrepreneurial capability is highlighted when faced with dynamic changes in the environment, and the changing environment allows entrepreneurs to take full advantage of their entrepreneurial capability (Teece, Pisano, & Shuen, 1997). On the one hand, the combination of environmental dynamics and a high level of operational management capability produces higher performance that are constantly faced with changing environments, and effective strategic decision-making can lead to rational responses to environmental changes (Miller & Friesen, 1983). Environmental dynamics require entrepreneurs to have a high level of change capability and response speed, which will inevitably require entrepreneurs to further enhance their entrepreneurial capability through entrepreneurship education. On the other hand, due to the volatility of the business environment in which the enterprise is located, entrepreneurs with entrepreneurial capability can make strategic adjustments in a timely manner according to changes in the external environment, and entrepreneurs have the capability to integrate resources, opportunity identification, and other capabilities and effects. The role and effect of entrepreneurs' resource integration and opportunity identification capabilities can be more easily and effectively realized. The dynamics of the environment can affect the relationship between entrepreneurs' leadership style and enterprise innovation (Jansen et al., 2006).

Entrepreneurs' innovation capability will adapt to the environmental dynamics according to the changes the market conditions, which encourages entrepreneurs to discover favorable moments, create brand new goods, improve related services, and continuously adapt to the changes and needs of the market. The co-evolution of environmental dynamics and entrepreneurs' innovation capability helps to increase the speed and scale of performance improvement for startups and realize their survival and growth. At the same time, the dynamic nature of the environment makes startups more dependent on entrepreneurs, whose capability to cope with the environment and organizational change motivates team members' morale and creates a good atmosphere

within the firm, which improves internal cohesion and external competitiveness (Rubin, Munz, & Bommer, 2005; Vera & Crossan, 2004).

5.2.4 Comparison of Two Indirect Effects

In comparing the two indirect effects of entrepreneurial intention and entrepreneurial capability on entrepreneurial performance, this study finds that both significantly contribute to performance, but entrepreneurial capability plays a more crucial role in dynamic environments.

Entrepreneurial intention is essential in motivating individuals to start entrepreneurial ventures by channeling resources and effort toward entrepreneurial activities. However, in environments marked by rapid change and uncertainty, external conditions often interfere with the conversion of intention into concrete performance outcomes. These conditions can hinder entrepreneurs' ability to act on their intentions, thereby weakening the effect of entrepreneurial intention on performance (Unger, Rauch, Frese, & Rosenbusch, 2011). As a result, while entrepreneurial intention can initiate the entrepreneurial process, its influence on final performance may diminish in unpredictable environments.

In contrast, entrepreneurial capability, which encompasses critical skills such as management, market opportunity recognition, resource integration, and team building, tends to have a more direct and significant impact on performance. Entrepreneurs equipped with these capabilities are better able to adapt to complex and dynamic environments, where effective decision-making and innovation are necessary for business survival and growth (Ahlin, Drnovšek, & Hisrich, 2014). The ability to execute strategies, resolve problems, and manage operational challenges becomes particularly important in sustaining enterprise growth (Botha & Taljaard, 2021; O’Gorman, 2019). Consequently, entrepreneurial capability exerts a stronger influence on performance compared to entrepreneurial intention, particularly in dynamic and uncertain market conditions (Rauch, 2007).

While entrepreneurial intention may be more constrained by external factors, entrepreneurial capability is more robust and adaptable, leading to a larger impact on performance, especially when entrepreneurs face unpredictable challenges and opportunities in dynamic environments (Barazandeh, Parvizian, Alizadeh, & Khosravi,

2015). This highlights the importance of developing entrepreneurial skills and capabilities alongside fostering entrepreneurial intention for enhanced performance in fluctuating market conditions.

5.3 Contributions of the Study

5.3.1 Theoretical Contributions

First, it opens up the content of entrepreneurial performance research and expands the scope of entrepreneurship theory. Traditional entrepreneurship theory mainly focuses on the influence of individual entrepreneurial traits, psychological capital, and the entrepreneurial environment on entrepreneurial performance, while this paper applies interdisciplinary knowledge, introduces the research results of management and education, and combines them with the new context of Chinese entrepreneurship. Based on the logic of entrepreneurship education research in multidimensionality, it considers entrepreneurship education as a variable with qualitative differences and interprets the new dimensional concept and new connotation system of entrepreneurship education. Based on the logic of multidimensional entrepreneurship education research, entrepreneurship education is considered a variable with qualitative differences, and the new dimensional concept and new connotation system of entrepreneurship education are interpreted. In the paper, entrepreneurship education is taken as an independent variable, and the mechanism research on the relationship between the four dimensions of entrepreneurship education and the entrepreneurial performance of college students enriches the theory of entrepreneurship and reflects certain theoretical innovations.

Second, this study builds an integrated mechanism model of the link between entrepreneurship education and entrepreneurial performance using related variables. It then looks at the underlying mechanism between the two in more detail and suggests a new direction for future research in this area. Previous research has shown that adopting a new learning style can directly lead to better performance. However, there aren't many studies that look at the variables that affect the relationship between entrepreneurship education and performance, and the intrinsic effect between the two hasn't been explained in detail. In order to explore how entrepreneurship education affects entrepreneurial performance, this study constructs an integrated model of the mechanisms of

entrepreneurship education, entrepreneurial intention, entrepreneurial capability, environmental dynamics, and entrepreneurial performance and draws conclusions by reviewing a large amount of related literature, interviewing entrepreneurs, distributing questionnaires on a large scale, organizing and examining data at a later stage, and then specifying the connotation, dimension, and measurement scales of the variables, and so on. The study concludes that the connotation, dimension, and measurement scale of each variable have been clarified, the mediating role of entrepreneurial intention and entrepreneurial capability in their respective roles and the moderating role of environmental dynamics have been verified, and the role of entrepreneurship education on entrepreneurial performance has been further clarified. The black box of the relationship between the two has been opened to make up for the insufficiency of research on the relationship between the two in academia and provide a useful reference for future research on the integration model. It further clarifies the role of entrepreneurship education on entrepreneurial performance, opens the "black box" of the relationship between the two, makes up for the lack of academic research on the relationship between the two, and provides new methods and tools for future research on the integration model.

Third, this study introduces environmental dynamics as a moderating variable, verifies the moderating role of environmental dynamics, explores the formation mechanism of entrepreneurial performance, and expands the realization path of entrepreneurial performance. How to improve entrepreneurial performance has been a hotly debated topic in both theoretical and practical fields. Previous scholars have conducted rich research on the drivers of entrepreneurial performance, but most of it has been conducted from the perspective of strategy, environment, and network. This study analyzes the role mechanism of entrepreneurship education on entrepreneurial performance from the perspective of organizational learning and explores new ways to improve entrepreneurial performance, which compensates for the insufficient attention paid to entrepreneurship education in existing studies and provides a new way of thinking for entrepreneurial performance research. Moreover, based on the close integration of theoretical exploration and empirical analysis, this study confirms the correctness of the fact that entrepreneurial performance research can be theoretically supported by the

Theory of Planned Behavior and the Theory of Self-Efficacy and points out a new direction for the future application of the above theories.

5.3.2 Managerial Implications

It is crucial to note that high levels of environmental dynamics typically indicate a challenging and unpredictable business landscape. While the analysis shows that the effects of entrepreneurship education are amplified in such environments, it is also important to recognize that operating in highly dynamic environments presents significant challenges for entrepreneurs. Therefore, from a practical standpoint, it may be more advantageous for entrepreneurs to seek out or create environments characterized by lower levels of environmental dynamics, where strategic planning and execution may be more straightforward.

A key implication arising from this analysis is the strategic choice entrepreneurs face between focusing on developing entrepreneurial intentions ($EE \rightarrow EI \rightarrow EP$) versus entrepreneurial capabilities ($EE \rightarrow EC \rightarrow EP$), especially considering varying levels of environmental dynamics. The findings reveal a consistent pattern: the indirect effects flowing through the $EE \rightarrow EC \rightarrow EP$ path consistently demonstrate higher magnitudes compared to those observed in the $EE \rightarrow EI \rightarrow EP$ path. This suggests that developing entrepreneurial capabilities may be a more potent mediator than fostering entrepreneurial intentions in translating educational efforts into performance outcomes.

Moreover, it is important to consider the practical aspects of improving these mediating factors. The research suggests that enhancing entrepreneurial capability may be more feasible and actionable for entrepreneurs compared to boosting entrepreneurial intention. This is largely because entrepreneurial capability involves concrete skills and knowledge that can be developed through targeted training and experience, whereas entrepreneurial intention is often deeply intertwined with personal traits and individual motivations, which can be more challenging to influence or modify in the short term.

Taking all these factors into account, the analysis leads to a nuanced recommendation: entrepreneurs should prioritize the development of their entrepreneurial capabilities, particularly in business environments characterized by lower levels of environmental dynamics. This strategy leverages the more impactful mediating role of entrepreneurial capability while also aligning with more stable and predictable business

conditions, potentially offering a more sustainable path to enhanced entrepreneurial performance.

In conclusion, this comprehensive analysis not only supports the hypotheses but also provides valuable strategic insights for entrepreneurs seeking to optimize their performance in varying business landscapes. It underscores the complex interplay between education, intention, capability, and external dynamics, offering a roadmap for entrepreneurs to navigate these factors effectively and maximize their chances of success.

5.4 Research Limitations and Recommendations for Further

5.4.1 Research Limitation

Although the researcher tries to make sure that the results are valid and reliable. Still this research has some limitations that require caution for other researchers who are interested in conducting similar studies on this topic and using a similar group of subjects. The shortcomings of this study mainly include the following points:

The study's sample collection was limited to a single time frame, using static data selected by the authors. However, this approach lacks a dynamic perspective, which is essential for investigating the influence of university entrepreneurship education on students' entrepreneurial performance. Moreover, it overlooks the potential evolution of the entrepreneurial intentions of the respondents over time.

Furthermore, the validation of the research hypotheses through structural equation modeling lacked the inclusion of control variables. Although the research methods employed are robust, the survey questionnaire failed to account for crucial factors such as the family background of the entrepreneurs and the diverse nature, size, and industries of the firms. This omission limits the study's capability to control for these variables, thereby affecting its conclusions.

In addition, the research sample has limitations. First and foremost, the study's stratified sampling focused solely on four types of universities without considering the regional distribution of the samples. This raises questions about the generalizability of the study's findings across different regions in China and warrants further verification. In addition, the companies surveyed were predominantly from the trade and service sectors, which requires confirmation of whether the research findings also apply to other sectors.

Finally, although 600 questionnaires were distributed across four categories of universities, only 424 valid responses were collected, resulting in a response rate of 70.67%. This limitation in sample size is attributed to time and resource constraints.

5.4.2 Recommendations for Further Research

The findings and limitations provide several unanswered questions and research gaps that suggest future research.

First and foremost, future research efforts will benefit from longitudinally tracking a relatively stable cohort of collegiate entrepreneurial teams to examine their diverse social entrepreneurial behaviors and their entrepreneurship education needs. By using their feedback and suggestions about entrepreneurship education, researchers can systematically shed light on the possible mechanisms underlying the link between entrepreneurship education and entrepreneurial performance, leading to more accurate conclusions.

Second, to strengthen the robustness of the study findings, future research could include additional control variables. Designing relevant questionnaire items to capture the characteristics of the research subjects and incorporating them as control variables can strengthen the reliability of the study results.

Third, it is imperative to increase the regional, industrial, and numerical diversity of survey samples to enhance their representativeness. As China's innovation and entrepreneurship efforts enter a phase of comprehensive development under the national "mass entrepreneurship and innovation" strategy, future research should intensify efforts, broaden the scope, and deepen the breadth of surveys to corroborate the findings of this study. This could include diversifying the geographical coverage of survey samples and obtaining data from different regions to strengthen the representativeness of the research. In addition, broadening the range of industries surveyed and increasing the sample size can mitigate potential data bias due to an insufficient sample size.

Fourth, while this study primarily examined the individual level of entrepreneurs and their corresponding subjective performance, future research could consider extending the scope from the individual to the organizational level. Examining the impact of entrepreneurial teams on organizational performance could facilitate the

application of the study's conclusions to entrepreneurial ventures, thereby increasing the salience of entrepreneurship education research.

Finally, exploring the mediating variables between entrepreneurship education and entrepreneurial performance can provide deeper insights into the underlying mechanisms. While this empirical study validated the mediating roles of entrepreneurial intentions and capabilities between entrepreneurship education and entrepreneurial performance, it remains to be determined whether other mediating variables traverse this path. Further research is warranted to uncover these variables and explain their mechanisms of influence, thereby enriching entrepreneurship education theory and providing entrepreneurs with insights to promote.



List of Bibliography

- Achrol, R. S., & Stern, L. W. (1988). Environmental determinants of decision-making uncertainty in marketing channels. *Journal of Marketing Research*, 25(1), 36-50.
- Acs, Z. J., Autio, E., & Szerb, L. (2014). National systems of entrepreneurship: Measurement issues and policy implications. *Research Policy*, 43(3), 476-494.
- Adomako, S., Howard Quartey, S., & Narteh, B. (2016). Entrepreneurial orientation, passion for work, perceived environmental dynamism and firm performance in an emerging economy. *Journal of Small Business and Enterprise Development*, 23(3), 728-752.
- Aga, M. K. (2023). The mediating role of perceived behavioral control in the relationship between entrepreneurship education and entrepreneurial intentions of university students in Ethiopia. *Journal of Innovation and Entrepreneurship*, 12(1), 32. <https://doi.org/10.1186/s13731-023-00297-w>
- Ahlin, B., Drnovšek, M., & Hisrich, R. D. (2014). Entrepreneurs' creativity and firm innovation: The moderating role of entrepreneurial self-efficacy. *Small Business Economics*, 43(1), 101-117.
- Ahuja, V., Akhtar, A., & Wali, O. P. (2019). Development of a comprehensive model of social entrepreneurial intention formation using a quality tool. *Journal of Global Entrepreneurship Research*, 9(1), 41. <https://doi.org/10.1186/s40497-019-0164-4>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Ajzen, I. (2005). *Attitudes, personality, and behavior*. McGraw-Hill Education (UK).
- Ajzen, I., Kuhl, J., & Beckmann, J. (1985). *Action control: From cognition to behavior*. In J. Kuhl & J. Beckmann (Eds.), *From intentions to actions: A theory of planned behavior* (pp. 11-39). Springer.
- Alijani, S. (2013). *Entrepreneurial capability and leadership*. In E. G. Carayannis (Ed.), *Encyclopedia of creativity, invention, innovation and entrepreneurship* (pp. 603-614). Springer.

- Andrews, M. J., Chatterji, A., Lerner, J., & Stern, S. X. (2022). ***The role of innovation and entrepreneurship in economic growth***. University of Chicago Press.
- Arranz, N., Ubierna, F., Arroyabe, M. F., Perez, C., & Fdez. de Arroyabe, J. C. (2017). The effect of curricular and extracurricular activities on university students' entrepreneurial intention and competences. ***Studies in Higher Education***, 42(11), 1979-2008.
- Audretsch, D. B., & Link, A. N. (2019). Embracing an entrepreneurial ecosystem: An analysis of the governance of research joint ventures. ***Small Business Economics***, 52, 429-436.
- Bacigalupo, M., Kampylis, P., Punie, Y., & Van den Brande, G. (2016). ***EntreComp: The entrepreneurship competence framework. Luxembourg***: Publication Office of the European Union.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. ***Psychological Review***, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Barazandeh, M., Parvizian, K., Alizadeh, M., & Khosravi, S. (2015). Investigating the effect of entrepreneurial competencies on business performance among early stage entrepreneurs: Global Entrepreneurship Monitor (GEM 2010 survey data). ***Journal of Global Entrepreneurship Research***, 5(1), 18. <https://doi.org/10.1186/s40497-015-0037-4>
- Batjargal, B. (2003). Social capital and entrepreneurial performance in Russia: A longitudinal study. ***Organization Studies***, 24(4), 535-556.
- Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. ***The Academy of Management Review***, 13(3), 442-453.
- StartupBlink. (2023). ***Global Startup Ecosystem Index 2023: Mapping the World's Startup Ecosystems***. StartupBlink. <https://bit.ly/StartupEcosystem2023>
- Bollen, K. A. (1989). ***Model notation, covariances, and path analysis***. John Wiley & Sons, Inc.
- Boon, J., Van der Klink, M., & Janssen, J. (2013). Fostering intrapreneurial competencies of employees in the education sector. ***International Journal of Training and Development***, 17(3), 210-220.

- Bosma, N., Van Praag, M., Thurik, R., & De Wit, G. (2004). The value of human and social capital investments for the business performance of startups. *Small Business Economics*, 23, 227-236.
- Brouthers, K. D., & Nakos, G. (2004). SME entry mode choice and performance: A transaction cost perspective. *Entrepreneurship Theory and Practice*, 28(3), 229-247.
- Bugental, D. B., Caporael, L., & Shennum, W. A. (1980). Experimentally produced child uncontrollability: Effects on the potency of adult communication patterns. *Child Development*, 520-528.
- Busenitz, L. W., West III, G. P., Shepherd, D., Nelson, T., Chandler, G. N., & Zacharakis, A. (2003). Entrepreneurship research in emergence: Past trends and future directions. *Journal of Management*, 29(3), 285-308.
- Camelo-Ordaz, C., Diáñez-González, J. P., & Ruiz-Navarro, J. (2016). The influence of gender on entrepreneurial intention: The mediating role of perceptual factors. *Business Research Quarterly*, 19(4), 261-277.
- Cao, Z. R., & Cao, N. N. (2011). Structural modeling of entrepreneurial performance: A modification based on the theory of entrepreneurial performance measurement. *Business Research*, 2, 122-127.
- Carlos Pinho, J., & Sampaio de Sá, E. (2014). Personal characteristics, business relationships and entrepreneurial performance: Some empirical evidence. *Journal of Small Business and Enterprise Development*, 21(2), 284-300.
- Carree, M., & Thurik, R. (1996). Entry and exit in retailing: Incentives, barriers, displacement and replacement. *Review of Industrial Organization*, 11, 155-172.
- Chandler, G. N., & Hanks, S. H. (1993). Measuring the performance of emerging businesses: A validation study. *Journal of Business Venturing*, 8(5), 391-408.
- Chandler, G. N., & Hanks, S. H. (1994). Market attractiveness, resource-based capabilities, venture strategies, and venture performance. *Journal of Business Venturing*, 9(4), 331-349.

- Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers. *Journal of Business Venturing*, 13(4), 295-316.
- Chen, D., & Shuai, J. (2023). Research on the impact of entrepreneurship education on the performance of college students returning to their hometowns in Hubei colleges and universities. *Industrial Science and Technology Innovation*, 5(1), 17-19.
- Chen, L., Ifenthaler, D., & Yau, J. Y.-K. (2021). Online and blended entrepreneurship education: A systematic review of applied educational technologies. *Entrepreneurship Education*, 4, 191-232.
- Chen, Y. Y. (2018). *A study of the relationship between entrepreneurial failure experience, entrepreneurial ability, and subsequent entrepreneurial venture growth performance*. (Doctoral dissertation), Jilin University.
- Chhabra, S., Raghunathan, R., & Rao, N. V. M. (2020). The antecedents of entrepreneurial intention among women entrepreneurs in India. *Asia Pacific Journal of Innovation and Entrepreneurship*, 14(1), 76-92.
- Chin, W. W. (1998). *The partial least squares approach to structural equation modeling*. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates.
- Choi, S. B., Lee, W. R., & Kang, S.-W. (2020). Entrepreneurial orientation, resource orchestration capability, environmental dynamics and firm performance: A test of three-way interaction. *Sustainability*, 12(13), 5415. <https://doi.org/10.3390/su12135415>
- Coombes, S. M. T., Morris, M. H., Allen, J. A., & Webb, J. W. (2011). Behavioural orientations of non-profit boards as a factor in entrepreneurial performance: Does governance matter. *Journal of Management Studies*, 48(4), 829-856.
- Cooper, D. R., & Schindler, P. S. (2002). *Business Research Methods*. McGraw-Hill/Irwin.
- Cruz, N. M., Rodriguez Escudero, A. I., Hernangomez Barahona, J., & Saboia Leitao, F. (2009). The effect of entrepreneurship education programmes on satisfaction with innovation behaviour and performance. *Journal of European Industrial Training*, 33(3), 198-214.

- Cui, J., & Bell, R. (2022). Behavioural entrepreneurial mindset: How entrepreneurial education activity impacts entrepreneurial intention and behaviour. *The International Journal of Management Education*, 20(2), 1472-8117.
- Dai, F., & Wu, H. (2022). Research on the development path of entrepreneurship education for college students majoring in economics and management in colleges and universities. *Journal of Harbin Vocational and Technical College*, 3, 87-89.
- Dehghanpour Farashah, A. (2013). The process of impact of entrepreneurship education and training on entrepreneurship perception and intention: Study of educational system of Iran. *Education Training*, 55(8/9), 868-885.
- Dess, G. G., & Beard, D. W. (1984). Dimensions of organizational task environments. *Administrative Science Quarterly*, 52-73.
- DeVellis, R. F., Blalock, S. J., Holt, K., Renner, B. R., Blanchard, L. W., & Klotz, M. L. (1991). Arthritis patients' reactions to unavoidable social comparisons. *Personality and Social Psychology Bulletin*, 17(4), 392-399.
- Díaz-Casero, J. C., Hernández-Mogollón, R., & Roldán, J. L. (2012). A structural model of the antecedents to entrepreneurial capacity. *International Small Business Journal*, 30(8), 850-872.
- Dodgson, J. E. (2020). Quality in research: Asking the right question. *Journal of Human Lactation*. 36(1), 105-108.
- Drucker, P., & Maciariello, J. (2014). Innovation and entrepreneurship. Routledge.
- Duncan, R. B. (1972). Characteristics of organizational environments and perceived environmental uncertainty. *Administrative Science Quarterly*, 313-327.
- Eesley, C., & Wang, Y. (2017). Social influence in career choice: Evidence from a randomized field experiment on entrepreneurial mentorship. *Research Policy*, 46(3), 636-650.
- Emami, A., Ashourizadeh, S., & Packard, M. D. (2023). The impact of social network support on opportunity intention among prospective male and female entrepreneurs during 2019-nCov pandemic. *International Journal of Entrepreneurial Behavior & Research*, 29(11), 132-169.

- Ensley, M. D., Hmieleski, K. M., & Pearce, C. L. (2006). The importance of vertical and shared leadership within new venture top management teams: Implications for the performance of startups. *The Leadership Quarterly*, 17(3), 217-231.
- Ensley, M. D., Pearce, C. L., & Hmieleski, K. M. (2006). The moderating effect of environmental dynamism on the relationship between entrepreneur leadership behavior and new venture performance. *Journal of Business Venturing*, 21(2), 243-263.
- Falck, O., Heblich, S., & Luedemann, E. (2012). Identity and entrepreneurship: Do school peers shape entrepreneurial intentions. *Small Business Economics*, 39, 39-59.
- Fan, W. (2017). *Research on the current situation and cultivation strategy of college students' entrepreneurial ability*. (Master's dissertation), Nanjing University of Posts and Telecommunications.
- Fang, X. (2019). *A study of the relationship between entrepreneurial orientation, entrepreneurial action learning and entrepreneurial performance*. (Doctoral dissertation), Northwest University.
- Fayolle, A., & Gailly, B. (2008). From craft to science: Teaching models and learning processes in entrepreneurship education. *Journal of European Industrial Training*, 32(7), 569-593.
- Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. *Journal of Small Business Management*, 53(1), 75-93.
- Feng, C. L., Zhang, M. Y., Liu, H. T., Zhang, H. Z., & He, M. H. (2015). A study of the relationship between supply chain knowledge sharing and firm performance: The mediating role of supply chain agility and the moderating role of environmental dynamics. *Management Commentary*, 27(11), 181-191.
- Fiet, J. O. (2001). The theoretical side of teaching entrepreneurship. *Journal of Business Venturing*, 16(1), 1-24.
- Fodor, O. C., & Pinte, S. (2017). The “emotional side” of entrepreneurship: A meta-analysis of the relation between positive and negative affect and entrepreneurial performance. *Frontiers in Psychology*, 8, 310.
<https://doi.org/10.3389/fpsyg.2017.00310>

- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, **18**(1), 39-50.
- Garavan, T. N., & Barra, O. (1994). Entrepreneurship education and training programmes: A review and evaluation–Part 1. *Journal of European Industrial Training*, **18**(8), 3-12.
- Garavan, T. N., & O' Cinneide, B. (1994). Entrepreneurship education and training programmes: A review and evaluation–Part 2. *Journal of European Industrial Training*, **18**(11), 13-21.
- Garg, V. K., Walters, B. A., & Priem, R. L. (2003). Chief executive scanning emphases, environmental dynamism, and manufacturing firm performance. *Strategic Management Journal*, **24**(8), 725-744.
- Gartner, W. B. (1988). "Who is an entrepreneur?" is the wrong question. *American Journal of Small Business*, **12**(4), 11-32.
- Ge, A. H. (2022). The effect of entrepreneurship education on entrepreneurial intention of college students: A meta-analysis-based study. *Innovation and Entrepreneurship Theory Research and Practice*, **5**(11), 84-90.
- Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, **4**(1), 7. <https://doi.org/10.17705/1CAIS.00407>
- George, G., & Bock, A. J. (2011). The business model in practice and its implications for entrepreneurship research. *Entrepreneurship Theory and Practice*, **35**(1), 83-111.
- Gillani, S. M., Senin, A. B. A., Bode, J., & Gillani, S. M. (2022). Bibliometric analysis of digital entrepreneurial education and student intention; reviewed and analyzed by VOSViewer from Google Scholar. *International Journal of Interactive Mobile Technologies (IJIM)*, **16**(13), 48-65.
- Gong, Y. X. (2014). Economic analysis of entrepreneurship. *Economics Dynamics*, **2**, 5-15.

- Gorman, G., Hanlon, D., & King, W. (1997). Some research perspectives on entrepreneurship education, enterprise education and education for small business management: A ten-year literature review. *International Small Business Journal*, 15(3), 56-77.
- Goyal, M., & Deshwal, P. (2023). Online post-purchase customer experience: A qualitative study using NVivo software. *Quality & Quantity*, 57(4), 3763-3781.
- Gruen, T. W., Osmonbekov, T., & Czaplewski, A. J. (2006). eWOM: The impact of customer-to-customer online know-how exchange on customer value and loyalty. *Journal of Business Research*, 59(4), 449-456.
- Gu, W., Wang, J., Hua, X., & Liu, Z. (2021). Entrepreneurship and high-quality economic development: Based on the triple bottom line of sustainable development. *International Entrepreneurship and Management Journal*, 17, 1-27.
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59-82.
- Guo, A. F., & Chen, J. (2013). The impact of science/experience-based learning on firms' innovation performance: The moderating role of environmental dynamics. *Research Management*, 34(6), 1-8.
- Guo, R., & Cai, L. (2014). An empirical study of the relationship between strategic experimentation, entrepreneurial ability and competitive advantage of new firms in the context of transition economy. *Foreign Economics and Management*, 36(12), 3-12.
- Hägg, G., & Gabrielsson, J. (2020). A systematic literature review of the evolution of pedagogy in entrepreneurial education research. *International Journal of Entrepreneurial Behavior & Research*, 26(5), 829-861.
- Hahn, D., Minola, T., Bosio, G., & Cassia, L. (2020). The impact of entrepreneurship education on university students' entrepreneurial skills: A family embeddedness perspective. *Small Business Economics*, 55, 257-282.
- Hair, J. F. (1998). *Multivariate data analysis*. Prentice Hall.
- Hair, J. F. (2010). *Multivariate data analysis*. Prentice Hall.

- Han, W. L., & Zhao, J. Y. (2020). Driver behaviour and traffic accident involvement among professional urban bus drivers in China. *Transportation Research Part F: Traffic Psychology and Behaviour*, 74, 184-197.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Publications.
- Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication Monographs*, 85(1), 4-40.
- Hayes, A. F., Montoya, A. K., & Rockwood, N. J. (2017). The analysis of mechanisms and their contingencies: PROCESS versus structural equation modeling. *Australasian Marketing Journal*, 25(1), 76-81.
- Henry, C., Hill, F., & Leitch, C. (2005). Entrepreneurship education and training: Can entrepreneurship be taught? Part I. *Education Training*, 47(2), 98-111.
- Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, 1(1), 104-121.
- Hmieleski, K. M., & Baron, R. A. (2008). Regulatory focus and new venture performance: A study of entrepreneurial opportunity exploitation under conditions of risk versus uncertainty. *Strategic Entrepreneurship Journal*, 2(4), 285-299.
- Hong, D., & Mao, J. (2017). *Report on entrepreneurship of Chinese university students*. Beijing: Renmin University Press.
- Hu, H. F. (2016). *Entrepreneurship and entrepreneurship management*. Nanjing: Southeast University Press.
- Huang, J. R. (2010). *A study of the impact of environmental characteristics, entrepreneurial networks on entrepreneurial opportunity identification*. (Doctoral dissertation), Jilin University.
- Huang, S. S. (2023). *Research on the mechanism and path of E-commerce platform empowering the entrepreneurial performance of complementary enterprises*. (Doctoral dissertation), Shanxi University of Finance and Economics.

- Huang, Y., Mo, Y., & Liu, X. (2022). Construction and empirical analysis of the evaluation system for innovative and entrepreneurial abilities of higher vocational college students. *Journal of Guangxi Vocational Normal University*, 34(03), 101-108.
- Isenberg, D. (2011). *The entrepreneurship ecosystem strategy as a new paradigm for economic policy: Principles for cultivating entrepreneurship*. Institute of International and European Affairs, Dublin, Ireland.
- Ittner, C. D., Larcker, D. F., & Meyer, M. W. (2003). Subjectivity and the weighting of performance measures: Evidence from a balanced scorecard. *The Accounting Review*, 78(3), 725-758.
- Jane Dandan, D. J. Z. Y. L. (2010). Conceptualization measurement, influencing factors, and theoretical modeling of entrepreneurial intentions. *Advances in Psychological Science*, 18(01), 162-169.
- Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science*, 52(11), 1661-1674.
- Jenkins, M., & Johnson, G. (1997). Entrepreneurial intentions and outcomes: A comparative causal mapping study. *Journal of Management Studies*, 34(6), 895-920.
- Jia, W., Wang, L., & Guo, Y. (2022). Research on domestic and international innovation and entrepreneurship education curriculum system. *China Education Technology Equipment*, 1-3.
- Jiang, L., Yu, Y. L., Liang, C. Y., Lu, W. X., & Gu, D. X. (2020). Study on the difference in the influence of entrepreneurship education on entrepreneurial intention of college students of different genders An empirical analysis based on 375 questionnaires. *Innovation and Entrepreneurship Education*, 11(6), 120-127.
- Jones, B., & Iredale, N. (2010). Enterprise education as pedagogy. *Education Training*, 52(1), 7-19.
- Jones, P., & Colwill, A. (2013). Entrepreneurship education: An evaluation of the Young Enterprise Wales initiative. *Education Training*, 55(8/9), 911-925.

- Jones, P., Penaluna, A., & Pittaway, L. (2014). Entrepreneurship education: A recipe for change. *The International Journal of Management Education*, 12(3), 304-306.
- Ju, W. (2022). *A study of academic engagement, entrepreneurial intentions, and academic entrepreneurial performance*. (Doctoral dissertation), Nanjing University of Science and Technology.
- Kai, Z. (2020). *A study of the mechanism by which coworkers' exit entrepreneurial performance affects employees' exit entrepreneurial intentions*. (Doctoral dissertation), Zhejiang University.
- Kautonen, T., Van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, 39(3), 655-674.
- Klepper, S., & Sleeper, S. (2005). *Entry by spinoffs*. *Management Science*, 51(8), 1291-1306.
- Klofsten, M., & Jones-Evans, D. (2000). Comparing academic entrepreneurship in Europe: The case of Sweden and Ireland. *Small Business Economics*, 14, 299-309.
- Klofsten, M., Urbano, D., & Heaton, S. (2021). Managing intrapreneurial capabilities: An overview. *Technovation*, 99, 1-6.
- Kolvereid, L., & Isaksen, E. (2006). New business start-up and subsequent entry into self-employment. *Journal of Business Venturing*, 21(6), 866-885.
- Kothari, C. R. (2004). Research methodology. New Age.
- Krueger Jr, N. F., & Brazeal, D. V. (1994). Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship Theory and Practice*, 18(3), 91-104.
- Krueger Jr, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5-6), 411-432.
- Krueger, N. F., & Carsrud, A. L. (1993). Entrepreneurial intentions: Applying the theory of planned behaviour. *Entrepreneurship & Regional Development*, 5(4), 315-330.
- Kumar, S., & Yadav, S. K. (2023). The role of social entrepreneurship in addressing global social challenges. *Journal of Law and Sustainable Development*, 11(6), 1-20.
- Kuratko, D. F. (2005). The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship Theory and Practice*, 29(5), 577-597.

- Kyro, P. (2008). A theoretical framework for teaching and learning entrepreneurship. *International Journal of Business and Globalisation*, 2(1), 39-55.
- Larson, M. G. (2006). Descriptive statistics and graphical displays. *Circulation*, 114(1), 76-81.
- Lee, S. H., & Wong, P. K. (2004). An exploratory study of technopreneurial intentions: A career anchor perspective. *Journal of Business Venturing*, 19(1), 7-28.
- Leyden, D. P., Link, A. N., & Siegel, D. S. (2014). A theoretical analysis of the role of social networks in entrepreneurship. *Research Policy*, 43(7), 1157-1163.
- Li, A., Xu, G., Zeng, X., & Zhou, N. (2012). The impact of educational system design on university students' opportunity-based entrepreneurial intentions: An empirical study from Chongqing. *Fudan Education Forum*, 10(1), 32-38.
- Li, H. (2001). How does new venture strategy matter in the environment–performance relationship. *The Journal of High Technology Management Research*, 12(2), 183-204.
- Li, H. (2020). Issues, causes, and countermeasures in higher education innovation and entrepreneurship education. *Innovation and Practice of Teaching Methods*, 3, 78-81.
- Li, H., & Atuahene-Gima, K. (2001). Product innovation strategy and the performance of new technology ventures in China. *Academy of Management Journal*, 44(6), 1123-1134.
- Li, J. (2023). *Research on the Influence Factors of Digital Entrepreneurial Psychological Capital and the Role Mechanism on Entrepreneurial Performance*. (Doctoral dissertation), Jilin University.
- Li, J. L., & Chen, Q. (2022). Entrepreneurial failure learning, resource patching, and subsequent entrepreneurial performance of farmers: The moderating role of entrepreneurial resilience. *Journal of Southwest University (Natural Science Edition)*, 44(1), 138-147.
- Li, J. W. (2014). *Research on the mechanism of entrepreneurship education's effect on college students' entrepreneurial intention*. (Doctoral dissertation), Nankai University.

- Li, X. L., & Wang, Q. J. (2020). Impact of learning from failure on new venture performance: The mediating effect of entrepreneurial competence. *Study of Financial Issues*, 9, 86-94.
- Li, Y., & Ahlstrom, D. (2020). Risk-taking in entrepreneurial decision-making: A dynamic model of venture decision. *Asia Pacific Journal of Management*, 37, 899-933.
- Liden, R. C., Stilwell, D., & Ferris, G. R. (1996). The effects of supervisor and subordinate age on objective performance and subjective performance ratings. *Human Relations*, 49(3), 327-347.
- Liguori, E., & Winkler, C. (2020). From offline to online: Challenges and opportunities for entrepreneurship education following the COVID-19 pandemic. *Entrepreneurship Education and Pedagogy*, 3, 346-351.
- Limna, P., Siripipathanakul, S., Siripipattanakul, S., & Auttawechasakoon, P. (2022). Determinants of electronic word of mouth during the COVID-19 pandemic in Thailand: A qualitative case study of hostels at Aonang, Krabi in Thailand. *Central Asian Journal of Innovations on Tourism Management Finance*, 3(4), 8-20.
- Lin, F., Moriano, J. A., & Zarnowska, A. (2008). *Teaching psychology of entrepreneurship: Perspective from six European countries*. Impreso en Espana.
- Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593-617.
- Liñán, F., & Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions: Citation, thematic analyses, and research agenda. *International Entrepreneurship and Management Journal*, 11, 907-933.
- Liñán, F., Rodríguez-Cohard, J. C., & Rueda-Cantuche, J. M. (2011). Factors affecting entrepreneurial intention levels: A role for education. *International Entrepreneurship and Management Journal*, 7, 195-218.
- Liu, M., Lu, G., & Peng, Z. (2011). Analysis of gender differences and influencing factors of college students' entrepreneurial intention. *Fudan Education Forum*, 9(6), 55-62.

- Liu, Q. H. (2022). *A study on the impact of entrepreneurial ability on entrepreneurial performance of technology-based start-ups*. (Doctoral dissertation), Dalian University of Technology.
- Liu, Z. (2014). *Research on the structure, influencing factors, and enhancement countermeasures of college students' entrepreneurial intention*. (Doctoral dissertation), Northeast Normal University.
- Lohr, S. L. (2019). *Sampling: Design and Analysis* (2nd ed.). Chapman and Hall/CRC.
- Lu, Q. P. (2015). On the relevance of college entrepreneurship education and college students' entrepreneurial ability. *Education Review*, 6, 21-24.
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135-172.
- Lumpkin, G. T., & Dess, G. G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *Journal of Business Venturing*, 16(5), 429-451.
- Luo, Y., Peng, Y., & Zeng, L. (2021). Digital financial capability and entrepreneurial performance. *International Review of Economics & Finance*, 76, 55-74.
- Luo, Z. H. (2009). *An empirical study on the transformation path between entrepreneurial ability and firm performance*. (Doctoral dissertation), Jilin University.
- Luo, Z. Y., & Huang, P. (2022). The effect of social networks on the performance of rural migrant workers returning to their hometowns to start their own businesses. *Journal of South China Agricultural University (Social Science Edition)*, 21(4), 57-66.
- Ly, H. M., & Wang, Y. N. (2021). A study on the impact of social networks on migrant workers' entrepreneurial performance - based on the mediating role of entrepreneurial ability. *Journal of Ningbo University (Humanities Edition)*, 34(1), 95-102.
- Ma, H., Zhang, Y. C., Butler, A., Guo, P., & Bozward, D. (2022). Entrepreneurial performance of new-generation rural migrant entrepreneurs in China. *International Journal of Entrepreneurial Behavior & Research*, 28(2), 412-440.

- Mahmood, R., Zahari, A. S. M., Ibrahim, N., Jaafar, N. F. H. N., & Yaacob, N. M. (2021). The impact of entrepreneur education on business performance. *Asian Journal of University Education*, 16(4), 171-180.
- Mai, G. Q. (2023). *A study on the mechanism of entrepreneurship and learning orientation on entrepreneurial performance*. (Doctoral dissertation), Guangdong University of Technology.
- Mai, Y. Q. (2021). *A study on the mechanism of entrepreneurship and learning orientation on entrepreneurial performance*. (Doctoral degree), Guangdong University of Technology.
- Mamabolo, A., & Myres, K. (2020). A systematic literature review of skills required in the different phases of the entrepreneurial process. *Small Enterprise Research*, 27(1), 39-63.
- Man, T. W. Y., & Lau, T. (2000). Entrepreneurial competencies of SME owner/managers in the Hong Kong services sector: A qualitative analysis. *Journal of Enterprising Culture*, 8(3), 235-254.
- Man, T. W. Y., Lau, T., & Chan, K. F. (2002). The competitiveness of small and medium enterprises: A conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing*, 17(2), 123-142.
- Man, T. W. Y., Lau, T., & Chan, K. F. (2008). Home-grown and abroad-bred entrepreneurs in China: A study of the influences of external context on entrepreneurial competencies. *Journal of Enterprising Culture*, 16(2), 113-132.
- Maritz, A., & Brown, C. R. (2013). Illuminating the black box of entrepreneurship education programs. *Education Training*, 55(3), 234-252.
- Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing*, 28(2), 211-224.
- McClelland, D. C. (1985). How motives, skills, and values determine what people do. *American Psychologist*, 40(7), 812.
- McMullen, J. S., & Dimov, D. (2013). Time and the entrepreneurial journey: The problems and promise of studying entrepreneurship as a process. *Journal of Management Studies*, 50(8), 1481-1512.

- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29(7), 770-791.
- Miller, D., & Friesen, P. H. (1983). Strategy-making and environment: The third link. *Strategic Management Journal*, 4(3), 221-235.
- Mosakowski, E. (1997). Strategy making under causal ambiguity: Conceptual issues and empirical evidence. *Organization Science*, 8(4), 414-442.
- Marsh, H.W., Balla, J. Goodness of fit in confirmatory factor analysis: The effects of sample size and model parsimony. *Qual Quant* 28, 185-217.
- Murphy, G. (2004). *The big book of concepts*. MIT Press.
- Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education*, 16(2), 277-299.
- Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: Known worlds and new frontiers. *Journal of Small Business Management*, 49(1), 55-70.
- Nikou, S., Brush, C., & Wraae, B. (2023). Entrepreneurship educators: A configurational analysis of factors influencing pedagogical choices. *International Journal of Entrepreneurial Behavior & Research*, 29(11), 81-108.
- Ning, D., He, T., Deng, J., & Zeng, X. (2023). The effect of innovative entrepreneurship education on entrepreneurial behavior: Mechanism research. *Journal of East China Normal University Educational Sciences*, 2, 93-105.
- Ning, D. P. (2017). *Research on the influence mechanism of entrepreneurial education on entrepreneurial behavior*. (Doctoral degree), Jilin University.
- Nowiński, W., Haddoud, M. Y., Lančarič, D., Egerová, D., & Czeglédi, C. (2019). The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries. *Studies in Higher Education*, 44(2), 361-379.
- O’Gorman, C. (2019). *Entrepreneurial intentions and entrepreneurial behaviour*. In M. McAdam & J. A. Cunningham (Eds.), *Entrepreneurial Behaviour: Individual, Contextual and Microfoundational Perspectives* (pp. 17-37). Cham: Springer International Publishing.

- Okolie, U. C., Igwe, P. A., Ayoola, A. A., Nwosu, H. E., Kanu, C., & Mong, I. K. (2021). Entrepreneurial competencies of undergraduate students: The case of universities in Nigeria. *The International Journal of Management Education*, 19(1), 100452. <https://doi.org/10.1016/j.ijme.2021.100452>
- Oosterbeek, H., Van Praag, M., & Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review*, 54(3), 442-454.
- Peteraf, M. A., & Barney, J. B. (2003). Unraveling the resource-based tangle. *Managerial and Decision Economics*, 24(4), 309-323.
- Peterman, N. E., & Kennedy, J. (2003). Enterprise education: Influencing students' perceptions of entrepreneurship. *Entrepreneurship Theory and Practice*, 28(2), 129-144.
- Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations: A resource dependence perspective* (New ed.). Stanford Business Books.
- Phan, P. H., Wong, P. K., & Wang, C. K. (2002). Antecedents to entrepreneurship among university students in Singapore: Beliefs, attitudes and background. *Journal of Enterprising Culture*, 10(2), 151-174.
- Pieterse, A. N., Van Knippenberg, D., & van Ginkel, W. P. (2011). Diversity in goal orientation, team reflexivity, and team performance. *Organizational Behavior and Human Decision Processes*, 114(2), 153-164.
- Piperopoulos, P., & Dimov, D. (2015). Burst bubbles or build steam? Entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intentions. *Journal of Small Business Management*, 53(4), 970-985.
- Pittaway, L., & Cope, J. (2007). Entrepreneurship education: A systematic review of the evidence. *International Small Business Journal*, 25(5), 479-510.
- Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health*, 30(4), 459-467.
- Porter, M. E. (1980). Industry structure and competitive strategy: Keys to profitability. *Financial Analysts Journal*, 36(4), 30-41.

- Prüfer, J., & Prüfer, P. (2020). Data science for entrepreneurship research: Studying demand dynamics for entrepreneurial skills in the Netherlands. *Small Business Economics*, 55, 651-672.
- Putro, H. P. N., Rusmaniah, R., Mutiani, M., Abbas, E. W., Jumriani, J., & Ilhami, M. R. (2022). Social capital of micro, small and medium enterprises in Kampung Purun for improving entrepreneurship education. AL-ISHLAH. *Journal Pendidikan*, 14(2), 1669-1680.
- Qu, R., Zhao, Y., & Niu, T. (2024). Research on the current situation of college students' entrepreneurship and promotion strategies. *Trade Fair Economy*, 5, 134-137.
- Raharjo, I. B., Ausat, A. M. A., Risdwiyanto, A., Gadzali, S. S., & Azzaakiyyah, H. K. (2023). Analysing the relationship between entrepreneurship education, self-efficacy, and entrepreneurial performance. *Journal on Education*, 5(4), 11566-11574.
- Raharjo, I. B., Tannady, H., Adinugroho, I., Kraugusteeliana, K., & Gultom, E. S. (2023). Analisis peran motivasi dan pelatihan kerja terhadap kinerja pelaku industri kuliner di Provinsi DKI Jakarta. *Management Studies and Entrepreneurship Journal (MSEJ)*, 4(1), 616-623.
- Rashid, L. (2019). Entrepreneurship education and sustainable development goals: A literature review and a closer look at fragile states and technology-enabled approaches. *Sustainability*, 11(19), 5343. <https://doi.org/10.3390/su11195343>
- Rasmussen, E., Mosey, S., & Wright, M. (2011). The evolution of entrepreneurial competencies: A longitudinal study of university spin-off venture emergence. *Journal of Management Studies*, 48(6), 1314-1345.
- Rasmussen, E. A., & Sørheim, R. (2006). Action-based entrepreneurship education. *Technovation*, 26(2), 185-194.
- Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, 16(4), 353-385.

- Ren, S., Jiang, Y., & Jia, Q. (2017). Research on the influence mechanism of entrepreneurship education on college students' entrepreneurial performance mediated by proactive personality. *Modern University Education*, 3, 106-111.
- Ripollés, M., & Blesa, A. (2023). Moderators of the effect of entrepreneurship education on entrepreneurial action. *International Journal of Entrepreneurial Behavior & Research*, 29(7), 1402-1426.
- Robinson, R. S. (2014). *Purposive sampling*. In A. C. Michalos (Ed.), *Encyclopedia of Quality of Life and Well-Being Research* (pp. 5243-5245). Dordrecht: Springer Netherlands.
- Rodríguez-Peña, A. (2023). Corporate entrepreneurship and firm performance relationship under the moderating effect of environmental dynamism: Replication and extension analysis. *Journal of International Entrepreneurship*, 1-36.
- Rovinelli, R. J., & Hambleton, R. K. (1977). On the use of content specialists in the assessment of criterion-referenced test item validity. *Journal of Educational Research*, 2(2), 49-60.
- Rubin, R. S., Munz, D. C., & Bommer, W. H. (2005). Leading from within: The effects of emotion recognition and personality on transformational leadership behavior. *Academy of Management Journal*, 48(5), 845-858.
- Sancho, M. P. L., Ramos-Rodriguez, A. R., & Vega, M. d. I. A. F. (2022). The influence of university entrepreneurship-oriented training in the transformation of intentions into new businesses. *The International Journal of Management Education*, 20(2), 100631. <https://doi.org/10.1016/j.ijme.2022.100631>
- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243-263.
- Sarasvathy, S. D. (2008). What makes entrepreneurs entrepreneurial. *Darden Business Publishing*, 1-9.
- Sariwulan, T., Suparno, S., Disman, D., Ahman, E., & Suwatno, S. (2020). Entrepreneurial performance: The role of literacy and skills. *The Journal of Asian Finance, Economics and Business*, 7(11), 269-280.

- Sebikari, K. V. (2019). Entrepreneurial performance and small business enterprises in Uganda. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, 3(1), 162-171.
- Seth, S. (2019). *Why entrepreneurship is important to the economy*. Business Leaders.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-226.
- Shane, S. A. (2003). *A general theory of entrepreneurship: The individual-opportunity nexus*. Edward Elgar Publishing.
- Shen, Y., Wang, Q., Hua, D., & Zhang, Z. Z. (2021). Entrepreneurial learning, self-efficacy, and firm performance: Exploring moderating effect of entrepreneurial orientation. *Frontiers in Psychology*, 12, 731628. <https://doi.org/10.3389/fpsyg.2021.731628>
- Shepherd, D. A., & DeTienne, D. R. (2005). Prior knowledge, potential financial reward, and opportunity identification. *Entrepreneurship Theory and Practice*, 29(1), 91-112.
- Shi, Q. H. (2018). *Research on the impact of entrepreneurship education on entrepreneurial performance of college students in Shanxi Province*. (Master's dissertation), Shanxi University of Finance and Economics.
- Shook, C. L., Priem, R. L., & McGee, J. E. (2003). Venture creation and the enterprising individual: A review and synthesis. *Journal of Management*, 29(3), 379-399.
- Siegel, R., Siegel, E., & Macmillan, I. C. (1993). Characteristics distinguishing high-growth ventures. *Journal of Business Venturing*, 8(2), 169-180.
- Sieger, P., Fueglistaller, U., & Zellweger, T. (2016). *Student Entrepreneurship 2016: Insights From 50 Countries*. St. Gallen/Bern.
- Simarasl, N., Tabesh, P., Munyon, T. P., & Marzban, Z. (2024). Unveiled confidence: Exploring how institutional support enhances the entrepreneurial self-efficacy and performance of female entrepreneurs in constrained contexts. *European Management Journal*, 42(1), 33-45.
- Singh, G., & DeNoble, A. (2003). Views on self-employment and personality: An exploratory study. *Journal of Developmental Entrepreneurship*, 8(3), 265-281

- Slavich, G. M., & Irwin, M. R. (2014). From stress to inflammation and major depressive disorder: A social signal transduction theory of depression. *Psychological Bulletin*, 140(3), 774-815
- Spigel, B., & Harrison, R. (2018). Toward a process theory of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*, 12(1), 151-168.
- Stam, E., & Wennberg, K. (2009). The roles of R&D in new firm growth. *Small Business Economics*, 33, 77-89.
- Stein, C., Morris, N., & Nock, N. (2012). Structural equation modeling. *Methods in Molecular Biology (Clifton, N.J.)*, 850, 495-512.
- Steiger, J. H. (1990). Structural Model Evaluation and Modification: An Interval Estimation Approach. *Multivariate Behavioral Research*, 25(2), 173–180.
- Strauss, A., & Corbin, J. M. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. SAGE Publications.
- Su, D. J., & Du, Q. X. (2022). A study of the relationship between entrepreneurial orientation, improvisation skills and international entrepreneurial performance. *Journal of Nanjing Audit University*, 19(5), 43-52.
- Su, D. M., Wu, Z. F., & Liu, C. (2017). External knowledge search and its dichotomous effect on innovation performance. *Science and Science and Technology Management*, 38(8), 109-121.
- Su, L. L., Pang, Y. L., & Kong, R. (2016). A study on the impact of farmers' entrepreneurial ability on entrepreneurial acquisition: Based on the mediating effect of entrepreneurial performance and the moderating effect of entrepreneurial motivation. *Agricultural Technology and Economics*, 12, 63-75.
- Sun, J. L., Yao, M. F., Zhang, W. Y., Chen, Y., & Liu, Y. (2016). Entrepreneurial environment, market-oriented strategy, and entrepreneurial performance: A study of Chinese automobile firms. *Internet Research*, 26(2), 546-562.
- Tajpour, M., & Hosseini, E. (2021). Entrepreneurial intention and the performance of digital startups: The mediating role of social media. *Journal of Content, Community & Communication*, 13(1), 2-15.
- Tang, J., & Jiang, Y. F. (2008). Conceptual development and empirical testing of entrepreneurial competence. *Economic Management*, 9, 51-55.

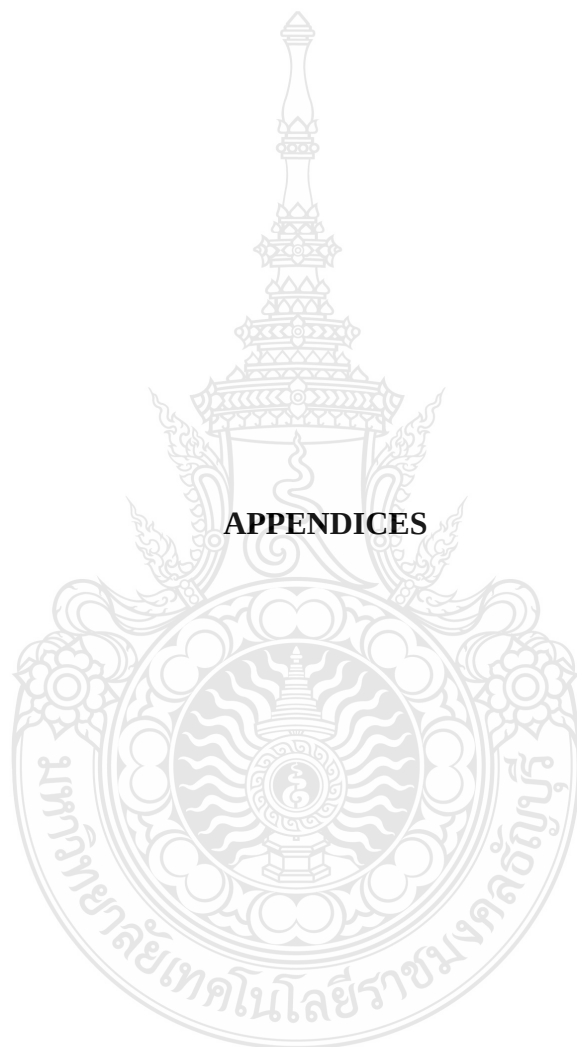
- Tang, Q., & Gu, J. P. (2016). The role of entrepreneurial spiritual capital and self-efficacy on entrepreneurial performance. *Business Economy*, 9, 111-117.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Tem, S., Kuroda, A., & Tang, K. N. (2020). The importance of soft skills development to enhance entrepreneurial capacity. *International Educational Research*, 3(3), 1-7.
- Thanasi-Boçe, M. (2020). Enhancing students' entrepreneurial capacity through marketing simulation games. *Education Training*, 62(9), 999-1013.
- Thompson, E. R. (2009). Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric. *Entrepreneurship Theory and Practice*, 33(3), 669-694.
- Thompson, J. A. (2005). Proactive personality and job performance: A social capital perspective. *Journal of Applied Psychology*, 90(5), 1011-1017.
<https://doi.org/10.1037/0021-9010.90.5.1011>
- Thompson, J. D. (2017). *Organizations in action: Social science bases of administrative theory*. Routledge.
- Tian, Y., & Hu, B. (2014). An empirical study on the relationship between industrial cluster agglomeration effect and entrepreneurial intention. *Chinese Journal of Management*, 11(7), 1029-1037.
- Tomy, S., & Pardede, E. (2020). An entrepreneurial intention model focusing on higher education. *International Journal of Entrepreneurial Behavior & Research*, 26(7), 1423-1447.
- Ucbasaran, D., Westhead, P., Wright, M., & Flores, M. (2010). The nature of entrepreneurial experience, business failure, and comparative optimism. *Journal of Business Venturing*, 25(6), 541-555.
- Unger, J. M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing*, 26(3), 341-358.
- Venkataraman, S. (1997). Value at risk for a mixture of normal distributions: The use of quasi-Bayesian estimation techniques. *Economic Perspectives-Federal Reserve Bank of Chicago*, 21, 2-13.

- Vera, D., & Crossan, M. (2004). Strategic leadership and organizational learning. *Academy of Management Review*, 29(2), 222-240.
- Vickery, S. K. (1991). A theory of production competence revisited. *Decision Sciences*, 22(3), 635-643.
- Wang, B. (2019). *A study of the mechanism of entrepreneurial learning on the performance of new ventures*. (Doctoral dissertation), Jilin University.
- Wang, F. R., Zou, J. J., Zheng, Y. D., & Xu, Y. P. (2021). An empirical study of entrepreneurial failure learning, entrepreneurial competence and serial entrepreneurial intentions. *Shanghai Management Science*, 43(6), 96-102.
- Wang, L. J., Wang, L., Zhou, S. C., Xiao, Q., Xiao, Y., Wang, X. T., Cao, T. Q., Ren, Y., Liang, Y. J., & Wang, L. (2021). Precipitation and micromechanical behavior of the coherent ordered nanoprecipitation strengthened Al-Cr-Fe-Ni-V high entropy alloy. *Acta Materialia*, 216, 117121.
<https://doi.org/10.1016/j.actamat.2021.117121>
- Wang, W. S. (2019). Theories and policies to enhance entrepreneurial success of college students. *Business Economy*, 6, 5-14.
- Wang, X. H., Bo, F. Y., & Lei, J. S. (2016). A study on the impact of entrepreneurship education on college students' entrepreneurial intention: And a comparison between undergraduate and senior high school students. *Tsinghua University Education Research*, 37(5), 116-124.
- Wang, Y. (2011). *A study on the influence of college students' social networks on entrepreneurial intentions*. (Master's dissertation), Zhejiang University.
- Wang, Y., Feng, W., & Wang, Y. (2013). A study on the correlation between entrepreneurial environment and entrepreneurial intention of college students: Based on Gnyawali & Fogel's five-latitude model perspective. *Educational Exploration*, 1, 150-151.
- Wang, Y., Zhou, H., Zhang, Y., & Sun, X. (2022). Role of entrepreneurial behavior in achieving sustainable digital economy. *Frontiers in Public Health*, 10, 829289.
<https://doi.org/10.3389/fpubh.2022.829289>
- Wang, Z., Ma, H., & Guo, P. (2020). Entrepreneurial passion, entrepreneurial learning and migrant workers' entrepreneurial performance. *Southern Economy*, 5, 111-126.

- Waseem, A., Rashid, Y., & Akbar, A. A. (2021). Role of government initiatives in shaping entrepreneurial intentions: A canonical correlation analysis. *Business Review*, 16(1), 13-29.
- Wattanakomol, S., & Silpcharu, T. (2023). Characteristics of entrepreneurs in sustainably successful micro, small, and medium enterprises. *Uncertain Supply Chain Management*, 11(3), 1359-1368.
- Wei, W., & Li, Q. (2015). An empirical study on the relationship between social capital, entrepreneurial self-efficacy and entrepreneurial intention of college students. *Journal of Xi'an University of Electronic Science and Technology (Social Science Edition)*, 25(1), 112-117.
- Welter, C., & Scrimshire, A. (2021). The missing capital: The case for psychological capital in entrepreneurship research. *Journal of Business Venturing Insights*, 16, e00267. <https://doi.org/10.1016/j.jbvi.2021.e00267>
- Wen, G., He, H. M., & Qin, Y. (2023). Research on the influence of psychological capital and social capital on the entrepreneurial performance of returning farmers: Based on the sample data of Sichuan province. *Journal of Southwest University (Natural Science Edition)*, 45(07), 45-56.
- Wen, L., & Li, L. (2010). Analysis of factors influencing entrepreneurial intention. *Explore*, 9, 78-79.
- Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24(13), 1307-1314.
- Withers, M. C., Drnevich, P. L., & Marino, L. (2011). Doing more with less: The disordinal implications of firm age for leveraging capabilities for innovation activity. *Journal of Small Business Management*, 49(4), 515-536.
- Wu, W., Wang, H., & Tsai, F.-S. (2020). Incubator networks and new venture performance: The roles of entrepreneurial orientation and environmental dynamism. *Journal of Small Business and Enterprise Development*, 27(5), 727-747.

- Xu, H. J. (2023). An empirical study on the relationship between innovation and entrepreneurship education, college students' entrepreneurial self-efficacy and entrepreneurial intention. *Journal of Ningbo Institute of Vocational Technology*, 27(04), 6-12.
- Xue, W. (2009). *Market segmentation research based on consumer behavior*. (Master's dissertation), Xidian University.
- Yan, L. N., Li, Y. K., & Jiao, R. (2021). Exploration of innovation and entrepreneurship education models in colleges and universities from the perspective of triple helix innovation. *Higher Agricultural Education*, 6, 29-35.
- Yang, R. (2023). *A study on the continuous entrepreneurial ability of Chinese university students*. (Doctoral dissertation), University of Science and Technology Beijing.
- Yang, X. R. (2018). A study of the effects of entrepreneurship education and prior experience on the entrepreneurial ability of college students. *Techno-Economic and Management Studies*, 9, 36-41.
- Yin, F. (2019). Entrepreneurship education, entrepreneurial intention, and college students' entrepreneurial performance: An empirical analysis based on a survey of 235 questionnaires. *Technology, Economics & Management Research*, 2, 41-46.
- Yu, S. Z. (2013). Research on the influence mechanism of entrepreneurial resources on entrepreneurial performance: Based on the moderating role of environmental dynamics. *Science and Science and Technology Management*, 34(6), 131-139.
- Zahra, S. A., & Bogner, W. C. (2000). Technology strategy and software new ventures' performance: Exploring the moderating effect of the competitive environment. *Journal of Business Venturing*, 15(2), 135-173.
- Zahra, S. A., & George, G. (2017). International entrepreneurship: The current status of the field and future research agenda. *Strategic Entrepreneurship: Creating a New Mindset*, 253-288.
- Zahra, S. A., & Wright, M. (2015). Understanding the social role of entrepreneurship. *Journal of Management Studies*, 53(4), 610-629.
- Zeyuan, L. (2015). Causes and countermeasures of weak entrepreneurial awareness of contemporary college students. *Education and Careers*, 23, 72-73.

- Zhang, B. W. (2018). *A study of the mechanism of entrepreneurial human capital on entrepreneurial success*. (Doctoral dissertation), Jilin University.
- Zhang, H., & Tian, M. F. (2007). Application of reliability analysis in the design of questionnaire. *Statistics and Decision*, 21, 25-27.
- Zhang, M., Tansuhaj, P., & McCullough, J. (2009). International entrepreneurial capability: The measurement and a comparison between born global firms and traditional exporters in China. *Journal of International Entrepreneurship*, 7, 292-322.
- Zhang, W. (2021). Research on the path of enhancing entrepreneurial performance through entrepreneurship education in colleges and universities. *Journal of Kaifeng Culture and Art Vocational College*, 41(6), 148-150.
- Zhang, X., Qi, W., & Li, Z. (2017). A study of the mechanism of entrepreneurial experience on entrepreneurial opportunity identification. *Scientific Research*, 35(3), 419-427.
- Zhang, X. E., & Zhang, K. (2018). The relationship between creativity and entrepreneurial intention: A moderated mediating effect model. *Foreign Economics & Management*, 40(3), 67-78.
- Zhang, Y., & Wang, X. (2011). An empirical study of prior experience, learning styles and entrepreneurial competence. *Management Science*, 24(3), 1-12.
- Zhao, L. (2012). *An empirical study on the impact of entrepreneurship education on college students' entrepreneurial performance in China's colleges and universities*. (Master's dissertation), Hebei Normal University.
- Zhao, Y., & Wu, J. (2022). Reflection on innovation and entrepreneurship education in colleges and universities from the perspective of game theory and construction of new models. *Journal of Changchun Normal University*, 41(11), 131-135.
- Zhong, W., & Huang, Z. (2012). An empirical study of the relationship between relationship strength, self-efficacy and entrepreneurial performance of entrepreneurs. *China Science and Technology Forum*, 1, 131-137.
- Zhu, Z. B., Xu, S., & Zhang, F. (2023). Proactive personality, innovative behavior, and farmer entrepreneurial performance. *Journal of Jiangxi University of Finance and Economics*, 2, 103-115.



APPENDIX A
Quantitative Research Questionnaire

Dear Respondent

The purpose of this academic study is to examine the impact of entrepreneurship education on entrepreneurial performance. Please take a few moments to answer the following questions. There are no right or wrong answers. We are interested in your overall impression. The information provided is for academic purposes only and should be kept strictly confidential.

Part 1: Personal Information

1. Gender

- ☐ Male ☐ Female

2. Age

- ☐ 18-22 years old ☐ 23-27 years old
☐ 28-35 years old

3. Your education level is:

- ☐ Specialized
☐ Undergraduate
☐ Postgraduate

4. Nature of the university you are attending

- ☐ HEIs under Central Ministries and Agencies
☐ Academic HEIs ☐ Professional HEIs ☐ Vocational HEIs

5. Your professional category

- ☐ Engineering ☐ Finance
☐ Management ☐ Education ☐ Others

6. Current number of employees in your company

- ☐ 10 employees or less ☐ 11-20 employees
☐ 21-50 employees ☐ More than 50 employees

7. Industry of your enterprise

- ☐ High-tech ☐ Traditional Manufacturing ☐ Finance
☐ Construction/Real Estate ☐ Trade/Services ☐ Others

Part 2: Survey Questionnaire

Please select based on your personal preferences and mark with a "√" in the appropriate column.

Items		Level of opinion				
1= least agree, 2= less agree, 3= moderately agree, 4= more agree, 5= most agree		1	2	3	4	5
Personal Involvement (PI)						
1	While in university, I frequently attend entrepreneurship education theory courses.	☐	☐	☐	☐	☐
2	During my time at university, I frequently attend entrepreneurship seminars organized by the university.	☐	☐	☐	☐	☐
3	While in university, I often participate in various types of entrepreneurial competitions.	☐	☐	☐	☐	☐
4	While in university, I regularly train or practice simulations of entrepreneurial skills.	☐	☐	☐	☐	☐
Personal Satisfaction (PS)		1	2	3	4	5
5	I am very satisfied with the theoretical courses related to entrepreneurship education.	☐	☐	☐	☐	☐
6	I am very satisfied with lectures or competitions on entrepreneurship.	☐	☐	☐	☐	☐
7	I am very satisfied with the practical courses related to entrepreneurship.	☐	☐	☐	☐	☐
8	I am very satisfied with the teachers who teach entrepreneurship education.	☐	☐	☐	☐	☐
Learning Effect (LE)		1	2	3	4	5
9	Entrepreneurship education enhances my spirit of innovation.	☐	☐	☐	☐	☐
10	Entrepreneurship education programs enhance my awareness of entrepreneurial risks.	☐	☐	☐	☐	☐
11	I have a good grasp of basic business knowledge after learning through entrepreneurship education.	☐	☐	☐	☐	☐
12	The entrepreneurship education program is a great way to improve my entrepreneurial capability.	☐	☐	☐	☐	☐
13	My psychological quality has improved after learning through entrepreneurship education.	☐	☐	☐	☐	☐
School Support (SS)		1	2	3	4	5
14	My university has a well-established entrepreneurship center or mentoring organization.	☐	☐	☐	☐	☐
15	The university offers an entrepreneurship elective.	☐	☐	☐	☐	☐
16	My university has a good creative atmosphere.	☐	☐	☐	☐	☐
17	The university's teachers are passionate and committed to entrepreneurship education.	☐	☐	☐	☐	☐
18	University leaders place a high value on entrepreneurship education.	☐	☐	☐	☐	☐
Perceived Desirability (PD)		1	2	3	4	5
19	I feel energized in an entrepreneurial work environment.	☐	☐	☐	☐	☐
20	I became an entrepreneur because it makes me feel better about my	☐	☐	☐	☐	☐

Items		Level of opinion				
1= least agree, 2= less agree, 3= moderately agree, 4= more agree, 5= most agree		1	2	3	4	5
	life.					
21	I have the confidence to start a business.	☐	☐	☐	☐	☐
22	Entrepreneurship can bring me challenges.	☐	☐	☐	☐	☐
23	Entrepreneurship can bring me great material rewards.	☐	☐	☐	☐	☐
24	Entrepreneurship is a good way for me to develop and improve my skills.	☐	☐	☐	☐	☐
Perceived Feasibility (PF)		1	2	3	4	5
25	I have told family or friends about my intention to start a business.	☐	☐	☐	☐	☐
26	I am starting a business because I want to do something new and different.	☐	☐	☐	☐	☐
27	I have taken the time to learn about entrepreneurship.	☐	☐	☐	☐	☐
28	I am very interested in starting a business.	☐	☐	☐	☐	☐
29	I believe that I can succeed in entrepreneurship by constantly pioneering and innovating.	☐	☐	☐	☐	☐
Propensity to Act (PA)		1	2	3	4	5
30	I like to work in a job where I can organize my time freely.	☐	☐	☐	☐	☐
31	I am willing to take the risks associated with starting a business.	☐	☐	☐	☐	☐
32	I am starting a business because it gives me the opportunity to make a difference.	☐	☐	☐	☐	☐
33	I strive for entrepreneurial success.	☐	☐	☐	☐	☐
Opportunity Identification Capability (OIC)		1	2	3	4	5
34	I can identify potential market opportunities in industry sectors.	☐	☐	☐	☐	☐
35	I can accurately identify customer needs for products and services.	☐	☐	☐	☐	☐
36	I am able to identify and discover business opportunities that can generate sustainable revenue.	☐	☐	☐	☐	☐
Managerial Capability (MC)		1	2	3	4	5
37	I can effectively lead, motivate, and supervise employees.	☐	☐	☐	☐	☐
38	I can rationalize the allocation of human, financial, and material resources within the organization.	☐	☐	☐	☐	☐
39	I can adjust the company's strategic goals and business ideas in a timely manner.	☐	☐	☐	☐	☐
40	I can effectively coordinate all tasks and various interests.	☐	☐	☐	☐	☐
Financial Readiness Capability (FRC)		1	2	3	4	5
41	I can find suitable venture capitalists through road shows and competitions.	☐	☐	☐	☐	☐
42	I can mobilize my parents to solve my seed capital problem.	☐	☐	☐	☐	☐
43	I can use my social network to help me with seed capital.	☐	☐	☐	☐	☐
44	I can find partners with sufficient funding.	☐	☐	☐	☐	☐
45	I can get start-up capital through government grants.	☐	☐	☐	☐	☐
Team Building Capability (TBC)		1	2	3	4	5
46	I research problems with the team to find acceptable solutions.	☐	☐	☐	☐	☐
47	I share my ideas with the team and make decisions together.	☐	☐	☐	☐	☐
48	I can lead the team to find solutions that meet our needs.	☐	☐	☐	☐	☐

Items		Level of opinion				
1= least agree, 2= less agree, 3= moderately agree, 4= more agree, 5= most agree		1	2	3	4	5
49	I can scientifically design the rights, responsibilities, and equity of the team's stakeholders.	☐	☐	☐	☐	☐
Intrapreneurial Environment (IE)		1	2	3	4	5
50	Enterprises are risk-takers with a high level of innovation.	☐	☐	☐	☐	☐
51	Well-established business with strong financial resources.	☐	☐	☐	☐	☐
52	Companies continue to adjust their strategies and introduce new products and services in a competitive marketplace.	☐	☐	☐	☐	☐
53	All departments of the enterprise cooperate closely and communicate well.	☐	☐	☐	☐	☐
External Environment (ETE)		1	2	3	4	5
54	The industry in which the Company currently operates is characterized by rapid technological change.	☐	☐	☐	☐	☐
55	The marketplace is constantly generating new customers for products.	☐	☐	☐	☐	☐
56	It is difficult to predict the competitive behavior of a company's competitors.	☐	☐	☐	☐	☐
57	It is difficult to predict how the industry will evolve in three years.	☐	☐	☐	☐	☐
58	The demand for products from new and existing customers of the company is highly variable.	☐	☐	☐	☐	☐
59	Customer preferences are changing rapidly.	☐	☐	☐	☐	☐
Financial Performance (FP)						
60	Entrepreneurship will significantly increase my income over my pre-entrepreneurship or pre-employment income.	☐	☐	☐	☐	☐
61	Entrepreneurship will significantly improve my standard of living compared to before entrepreneurship.	☐	☐	☐	☐	☐
62	Entrepreneurship will improve and enhance the quality of life for my family.	☐	☐	☐	☐	☐
Growth Performance (GP)		1	2	3	4	5
63	My business has achieved the goals I had in mind before I started it.	☐	☐	☐	☐	☐
64	I have realized the value of my life.	☐	☐	☐	☐	☐
65	I have achieved some success in my current business.	☐	☐	☐	☐	☐
66	I feel that I have contributed to society by starting my own business.	☐	☐	☐	☐	☐
67	Entrepreneurship makes me very happy.	☐	☐	☐	☐	☐

APPENDIX B
Outline of Qualitative Interviews

Part 1. Explanation of relevant concepts:

Successful Entrepreneurs: Entrepreneurs achieve performance through meeting financial and business goals, such as profitability, growth, and market success. At the same time, individual entrepreneurs measure their success through career satisfaction, which includes personal fulfillment, achieving work-life balance, and professional growth (Zhang, 2018).

Part 2. Basic information collection:

Question 1: What is your age and the level of your college?

Question 2: What is the industry in which you started your business?

Part 3. Interview questions:

Question 1: As a university student entrepreneur, could you talk about your experience with entrepreneurship education?

Question 2: How has entrepreneurship education helped you in your actual entrepreneurial endeavors? What kind of impact has it had? Please discuss based on your real-life experiences.

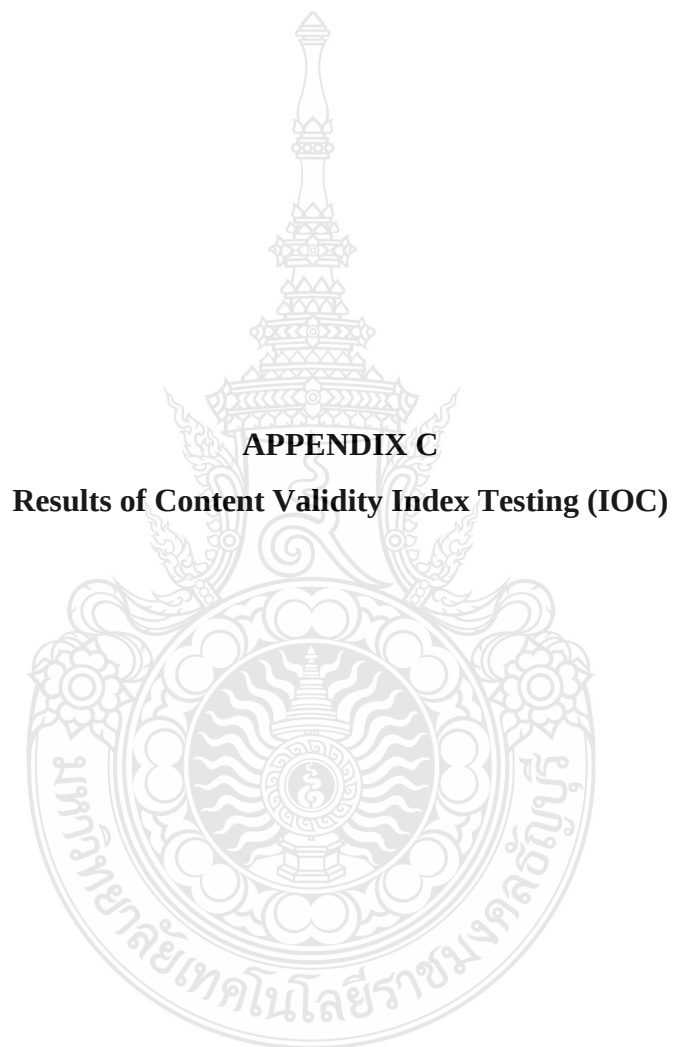
Question 3: What areas of university entrepreneurship education do you think need improvement? What problems exist?

Question 4: As an entrepreneur, what do you think has contributed to your current entrepreneurial success? Which factors have played a more significant role?

Question 5: As a teacher or expert in entrepreneurship education, could you describe the entrepreneurship education situation at your institution?

Question 6: In your opinion, in what ways should entrepreneurship education be improved?

Question 7: As an entrepreneurship education teacher, what do you believe university students need to do to achieve entrepreneurial success? Or, what conditions are necessary for entrepreneurial success?



Results of Content Validity Index Testing (IOC)

Variable	Item	Subject-matter expert							Average	Total Average
		1	2	3	4	5	6	7		
PI	PI1	+1	+1	+1	+1	+1	+1	+1	1.00	0.93
	PI2	0	+1	+1	+1	+1	+1	+1	0.86	
	PI3	0	+1	+1	+1	+1	+1	+1	0.86	
	PI4	+1	+1	+1	+1	+1	+1	+1	1.00	
PS	PS1	+1	+1	+1	+1	+1	+1	+1	1.00	0.96
	PS2	0	+1	+1	+1	+1	+1	+1	0.86	
	PS3	+1	+1	+1	+1	+1	+1	+1	1.00	
	PS4	+1	+1	+1	+1	+1	+1	+1	1.00	
LE	LE1	+1	0	+1	+1	+1	+1	+1	0.86	0.94
	LE2	+1	0	+1	+1	+1	+1	+1	0.86	
	LE3	+1	+1	+1	+1	+1	+1	+1	1.00	
	LE4	+1	+1	+1	+1	+1	+1	+1	1.00	
	LE5	+1	+1	+1	+1	+1	+1	+1	1.00	
SS	SS1	+1	+1	+1	+1	+1	+1	+1	1.00	0.97
	SS2	+1	+1	+1	+1	+1	+1	+1	1.00	
	SS3	+1	+1	+1	+1	+1	+1	+1	1.00	
	SS4	+1	+1	+1	+1	+1	+1	+1	1.00	
	SS5	0	+1	+1	+1	+1	+1	+1	0.86	
PD	PD1	+1	+1	+1	+1	+1	+1	+1	1.00	0.94
	PD2	+1	+1	+1	+1	+1	+1	+1	1.00	
	PD3	+1	+1	+1	+1	+1	+1	+1	1.00	
	PD4	+1	0	+1	+1	+1	+1	+1	0.86	
	PD5	+1	0	+1	+1	+1	+1	+1	0.86	
PF	PF1	+1	+1	+1	+1	+1	+1	+1	1.00	0.94
	PF2	+1	+1	+1	+1	+1	+1	+1	1.00	
	PF3	+1	+1	+1	+1	+1	+1	+1	1.00	
	PF4	+1	0	+1	+1	+1	+1	+1	0.86	
	PF5	+1	0	+1	+1	+1	+1	+1	0.86	
PA	PA1	+1	+1	+1	+1	+1	+1	+1	1.00	1
	PA2	+1	+1	+1	+1	+1	+1	+1	1.00	
	PA3	+1	+1	+1	+1	+1	+1	+1	1.00	
	PA4	+1	+1	+1	+1	+1	+1	+1	1.00	
OIC	OIC1	+1	+1	+1	+1	+1	+1	+1	1.00	1
	OIC2	+1	+1	+1	+1	+1	+1	+1	1.00	
	OIC3	+1	+1	+1	+1	+1	+1	+1	1.00	

Results of Content Validity Index Testing (IOC)

Variable	Item	Subject-matter expert							Average	Total Average
		1	2	3	4	5	6	7		
MC	MC1	+1	+1	+1	+1	+1	+1	+1	1.00	1
	MC2	+1	+1	+1	+1	+1	+1	+1	1.00	
	MC3	+1	+1	+1	+1	+1	+1	+1	1.00	
	MC4	+1	+1	+1	+1	+1	+1	+1	1.00	
FRC	FRC1	+1	+1	+1	+1	+1	+1	+1	1.00	1
	FRC2	+1	+1	+1	+1	+1	+1	+1	1.00	
	FRC3	+1	+1	+1	+1	+1	+1	+1	1.00	
	FRC4	+1	+1	+1	+1	+1	+1	+1	1.00	
	FRC5	+1	+1	+1	+1	+1	+1	+1	1.00	
TBC	TBC1	+1	+1	+1	+1	+1	+1	+1	1.00	1
	TBC2	+1	+1	+1	+1	+1	+1	+1	1.00	
	TBC3	+1	+1	+1	+1	+1	+1	+1	1.00	
	TBC4	+1	+1	+1	+1	+1	+1	+1	1.00	
IE	IE1	+1	+1	+1	+1	+1	+1	+1	1.00	1
	IE2	+1	+1	+1	+1	+1	+1	+1	1.00	
	IE3	+1	+1	+1	+1	+1	+1	+1	1.00	
	IE4	+1	+1	+1	+1	+1	+1	+1	1.00	
ETE	ETE1	+1	+1	+1	+1	+1	+1	+1	1.00	0.94
	ETE2	+1	+1	+1	+1	+1	+1	+1	1.00	
	ETE3	+1	+1	0	+1	+1	+1	+1	0.86	
	ETE4	+1	+1	0	+1	+1	+1	+1	0.86	
	ETE5	+1	+1	+1	+1	+1	+1	+1	1.00	
FP	FP1	+1	+1	+1	+1	+1	+1	+1	1.00	0.95
	FP2	+1	+1	+1	+1	+1	+1	+1	1.00	
	FP3	0	+1	+1	+1	+1	+1	+1	0.86	
GP	GP1	+1	+1	+1	+1	+1	+1	+1	1.00	1
	GP2	+1	+1	+1	+1	+1	+1	+1	1.00	
	GP3	+1	+1	+1	+1	+1	+1	+1	1.00	
	GP4	+1	+1	+1	+1	+1	+1	+1	1.00	
	GP5	+1	+1	+1	+1	+1	+1	+1	1.00	
Total IOC average score									0.97	

APPENDIX D
Information on Invitation Letter

ที่ อว 0649.06/8644



คณะบริหารธุรกิจ
มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี
ตำบลคลองหก อำเภอคลองหลวง
จังหวัดปทุมธานี 12110

15 ธันวาคม 2566

เรื่อง ขอความอนุเคราะห์ตรวจสอบความถูกต้องเชิงเนื้อหาของแบบสอบถาม

เรียน ผู้ช่วยศาสตราจารย์ ดร.ศิริญา วิรุณราช

สิ่งที่ส่งมาด้วย แบบสอบถามดัชนีพนธ์

ด้วยคณะบริหารธุรกิจ มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี ได้เปิดสอนระดับปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาบริหารธุรกิจ ตั้งแต่ปีการศึกษา 2551 แล้วนั้น

เพื่อเป็นประโยชน์สำหรับนักศึกษา จึงใคร่ขอความอนุเคราะห์ตรวจสอบความถูกต้องเชิงเนื้อหาของแบบสอบถาม สำหรับนักศึกษา ราย Mr. Feng Liu รหัสนักศึกษา 126490501005-5 เป็น นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาบริหารธุรกิจ วิชาเอกการจัดการ เป็นผู้จัดทำดัชนีพนธ์ เรื่อง Impact of Entrepreneurship Education on Entrepreneurial Performance โดยมี ผู้ช่วยศาสตราจารย์ ดร.พุทธิวัฒน์ สิงห์ดง เป็นที่ปรึกษาดัชนีพนธ์

จึงเรียนมาเพื่อขอความอนุเคราะห์ตรวจสอบความถูกต้องเชิงเนื้อหาของแบบสอบถาม จักเป็น
พระคุณยิ่ง

ขอแสดงความนับถือ

(รองศาสตราจารย์ ดร.กล้าหาญ ณ น่าน)
คณบดีคณะบริหารธุรกิจ

โครงการปริญญาเอก

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ที่ อว 0649.06/ 8645



คณะบริหารธุรกิจ
มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี
ตำบลคลองหก อำเภอคลองหลวง
จังหวัดปทุมธานี 12110

15

ธันวาคม 2566

เรื่อง ขอความอนุเคราะห์ตรวจสอบความถูกต้องเชิงเนื้อหาของแบบสอบถาม

เรียน ผู้ช่วยศาสตราจารย์ ดร.ดวงพร พุทธิวงศ์

สิ่งที่ส่งมาด้วย แบบสอบถามดัชนีทุน

ด้วยคณะบริหารธุรกิจ มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี ได้เปิดสอนระดับปริญญาเอก
หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาบริหารธุรกิจ ตั้งแต่ปีการศึกษา 2551 แล้วนั้น

เพื่อเป็นประโยชน์สำหรับนักศึกษา จึงใคร่ขอความอนุเคราะห์ตรวจสอบความถูกต้องเชิง
เนื้อหาของแบบสอบถาม สำหรับนักศึกษา ราย Mr. Feng Liu รหัสนักศึกษา 126490501005-5 เป็น
นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาบริหารธุรกิจ วิชาเอกการจัดการ เป็นผู้จัดทำดัชนีทุน เรื่อง
Impact of Entrepreneurship Education on Entrepreneurial Performance โดยมี ผู้ช่วยศาสตราจารย์
ดร.พุทธิวัฒน์ สิงห์ตง เป็นที่ปรึกษาดัชนีทุน

จึงเรียนมาเพื่อขอความอนุเคราะห์ตรวจสอบความถูกต้องเชิงเนื้อหาของแบบสอบถาม จักเป็น
พระคุณยิ่ง

ขอแสดงความนับถือ

(รองศาสตราจารย์ ดร.กล้าหาญ ญ น่าน)
คณบดีคณะบริหารธุรกิจ

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ที่ อว 0649.06/ 8๒74



คณะบริหารธุรกิจ
มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี
ตำบลคลองหก อำเภอคลองหลวง
จังหวัดปทุมธานี 12110

18 ธันวาคม 2566

เรื่อง ขอความอนุเคราะห์ตรวจสอบความถูกต้องเชิงเนื้อหาของแบบสอบถาม

เรียน ผู้ช่วยศาสตราจารย์ ดร.กนกพร ชัยประสิทธิ์

สิ่งที่ส่งมาด้วย แบบสอบถามดัชนีพนธ์

ด้วยคณะบริหารธุรกิจ มหาวิทยาลัยเทคโนโลยีราชมงคลธัญบุรี ได้เปิดสอนระดับปริญญาเอก
หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาบริหารธุรกิจ ตั้งแต่ปีการศึกษา 2551 แล้วนั้น

เพื่อเป็นประโยชน์สำหรับนักศึกษา จึงใคร่ขอความอนุเคราะห์ตรวจสอบความถูกต้องเชิง
เนื้อหาของแบบสอบถาม สำหรับนักศึกษา ราย Mr. Feng Liu รหัสนักศึกษา 126490501005-5 เป็น
นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาบริหารธุรกิจ วิชาเอกการจัดการ เป็นผู้จัดทำดัชนีพนธ์ เรื่อง
Impact of Entrepreneurship Education on Entrepreneurial Performance โดยมี ผู้ช่วยศาสตราจารย์
ดร.พุทธิวัต สิงห์ตง เป็นที่ปรึกษาดัชนีพนธ์

จึงเรียนมาเพื่อขอความอนุเคราะห์ตรวจสอบความถูกต้องเชิงเนื้อหาของแบบสอบถาม จักเป็น
พระคุณยิ่ง

ขอแสดงความนับถือ

(รองศาสตราจารย์ ดร.กล่าวณ ญ น่าน)
คณบดีคณะบริหารธุรกิจ

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MHESI 0649.06/ 1622



Faculty of Business Administration
Rajamangala University of
Technology Thanyaburi
39 Moo 1, Khlong Hok Subdistrict,
Khlong Luang District Pathumthani
12110, Thailand

March ๕ , 2024

Dear Professor Chen Shuangying
University of Electronic Science and Technology, China

Subject: Request for evaluation of the research instruments

Attachment: Dissertation questionnaire

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments for Mr. Feng Liu doctoral student in Business Administration program specialized in Management at Rajamangala University of Technology Thanyaburi.

Mr. Feng Liu has been working on a dissertation titled "Impact of entrepreneurship education on entrepreneurial performance" under supervision of Assistant Professor Dr. Putthiwat Singhdong for a period of time. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or do need further information, please feel free to contact Mr. Feng Liu on the e-mail: 747518128@qq.com

Your sincerely,

A handwritten signature in blue ink, appearing to read 'Khahan'.

Associate Professor Khahan Na-Nan, Ph.D.
Dean of Faculty of Business Administration

Office of Graduate Studies Doctoral Program
Tel.02-5494819, 081-7952191 Fax.02-5493243
Email: phd.bus.rmutt@hotmail.co.th

MHESI 0649.06/ 1621



Faculty of Business Administration
Rajamangala University of
Technology Thanyaburi
39 Moo 1, Khlong Hok Subdistrict,
Khlong Luang District Pathumthani
12110, Thailand

March 5, 2024

Dear Professor Li Rui
Chongqing Vocational and Technical University of Mechatronic, China

Subject: Request for evaluation of the research instruments

Attachment: Dissertation questionnaire

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments for Mr. Feng Liu doctoral student in Business Administration program specialized in Management at Rajamangala University of Technology Thanyaburi.

Mr. Feng Liu has been working on a dissertation titled "Impact of entrepreneurship education on entrepreneurial performance" under supervision of Assistant Professor Dr. Putthiwat Singhdong for a period of time. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or do need further information, please feel free to contact Mr. Feng Liu on the e-mail: 747518128@qq.com

Your sincerely,

Associate Professor Khahan Na-Nan, Ph.D.
Dean of Faculty of Business Administration

Office of Graduate Studies Doctoral Program
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MHESI 0649.06/ 1623



Faculty of Business Administration
Rajamangala University of
Technology Thanyaburi
39 Moo 1, Khlong Hok Subdistrict,
Khlong Luang District Pathumthani
12110, Thailand

March 5, 2024

Dear Professor Long Chengchun
Sichuan University of Science & Engineering, China

Subject: Request for evaluation of the research instruments

Attachment: Dissertation questionnaire

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments for Mr. Feng Liu doctoral student in Business Administration program specialized in Management at Rajamangala University of Technology Thanyaburi.

Mr. Feng Liu has been working on a dissertation titled "Impact of entrepreneurship education on entrepreneurial performance" under supervision of Assistant Professor Dr. Putthiwat Singhdong for a period of time. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or do need further information, please feel free to contact Mr. Feng Liu on the e-mail: 747518128@qq.com

Your sincerely,

Associate Professor Khahan Na-Nan, Ph.D.
Dean of Faculty of Business Administration

Office of Graduate Studies Doctoral Program
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MHESI 0649.06/ 1624



Faculty of Business Administration
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39 Moo 1, Khlong Hok Subdistrict,
Khlong Luang District Pathumthani
12110, Thailand

March 5, 2024

Dear Professor Xiao Lan
Urban Vocational College of Sichuan, China

Subject: Request for evaluation of the research instruments

Attachment: Dissertation questionnaire

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments for Mr. Feng Liu doctoral student in Business Administration program specialized in Management at Rajamangala University of Technology Thanyaburi.

Mr. Feng Liu has been working on a dissertation titled "Impact of entrepreneurship education on entrepreneurial performance" under supervision of Assistant Professor Dr. Putthiwat Singhdong for a period of time. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or do need further information, please feel free to contact Mr. Feng Liu on the e-mail: 747518128@qq.com

Your sincerely,

A handwritten signature in blue ink, appearing to be 'N. N.' or similar.

Associate Professor Khahan Na-Nan, Ph.D.
Dean of Faculty of Business Administration

Office of Graduate Studies Doctoral Program
Tel.02-5494819, 081-7952191 Fax.02-5493243
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Biography

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Date of Birth	January 2, 1990
Address	Room 6, 14th Floor, Unit 1, Building 9, No. 137, Second Section of Daxuecheng Road, Cuiping District, Yibin City, Sichuan Province, China
Education	Master Degree of Agricultural Extension (Field: Crop) , Sichuan Agricultural University, China
Experiences Work	Work Teacher at Sichuan University of Science & Engineering (2015-Present)
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