

The relationship between psychological capital, entrepreneurial ability, and entrepreneurial performance of digital entrepreneurs

Xu Ren Niu

Abstract

As a positive psychological resource possessed by individuals, psychological capital can effectively resist the double impact of the new crown epidemic and entrepreneurial pressure on digital entrepreneurs. Therefore, it is of great significance to pay attention to the level of psychological capital of digital entrepreneurs. The purpose of this thesis reviews and summarizes the relevant literature on digital entrepreneurship and psychological capital and finds that the psychological capital of digital entrepreneurs refers to the ability of digital entrepreneurs to positively influence when they encounter certain special events (such as the emergence of new digital technologies or opportunities). In this model, digital entrepreneurship ability is used as an intermediary variable. Research design based on exploratory factor analysis, confirmatory factor analysis and Pears on correlation analysis were used to test the reliability and validity of the questionnaire, and hypothesis testing was carried out by constructing structural equation model and bootstrap method. The findings and results obtained show that most of the hypotheses proposed in this thesis are supported by data and verified by methods. The main research implications and conclusions are as follows: (1) The psychological capital of digital entrepreneurs significantly and positively affects entrepreneurial performance; (2) The psychological capital of digital entrepreneurs significantly and positively affects entrepreneurial performance ; Capital positively affects digital entrepreneurial ability ; (3) Digital entrepreneurial ability has a significant positive relationship with entrepreneurial performance ; (4) Digital entrepreneurial ability plays a partial mediating role between digital entrepreneurial psychological capital and entrepreneurial performance ; (5) environmental dynamism plays a significant positive moderating role between psychological capital and digital entrepreneurial ability, and between digital entrepreneurial ability and entrepreneurial performance.



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About Author (s)

Xu Ren Niu, Asia Metropolitan University, Malaysia.

Introduction

In January 2022, the "14th Five-Year" Digital Economy Development Plan promulgated by the State Council marked that China's digital economy has officially entered a new stage of high-quality development. The digital economy has different meanings given to it in different eras. The connotation of the digital economy in the 1960s -1980s is the information economy, which is dominated by the development of basic tools such as software and hardware; The network economy is mainly in the 1990s-2010s, and e-commerce and portal websites have developed rapidly; Since the 2010s, it has entered the digital economy. economy, and its leading industries are artificial intelligence, cloud services, and the sharing economy. Since 2013, the Chinese government has formulated hundreds of development plans and guidelines for related fields of the digital economy. On August 2, 2021, the "Global Digital Economy White thesis" released by the China Academy of Information and Communications Technology at the "2021 Global Digital Economy Conference" showed that since 2020, the total digital economy scale of 47 countries in the world has reached 32.6 trillion dollars. The scale of China's digital economy reached US\$ 5.4 trillion, ranking second in the world; with a year-on-year growth of 9.6%, it ranked first in the world. It can be seen that the huge volume of the digital economy shows that there are many consumers who pay for digital products and services. With the development of technology and the perfection of the front end, activities related to digital entrepreneurship have become more and more popular. After overcoming technical barriers, the open digital platform has become friendly to ordinary people who want to start a business. Digital entrepreneurship has also been favored by entrepreneurs because of its low cost and high return (Rosenbaum & Cronin, 1993; Giones& Brem, 2017; Hamid & Khalid, 2016; Farani et al., 2017). Since 2020, the new crown epidemic has made it difficult for citizens to go out, and the offline physical industry has been severely impacted. This has caused more entrepreneurs and potential entrepreneurs to turn to digital entrepreneurship with relatively closed physical space. According to the 2020 central bank survey report, my country's entrepreneur confidence index¹ is 59.2%, a decrease of 7.8% compared with 2019. The frustration of entrepreneurs' confidence during the epidemic will lead to the idea of starting a business and exiting. In the digital age, if entrepreneurs are careless, their entrepreneurial performance will be like sailing against the current. Relevant evidence shows that psychological capital can positively affect entrepreneurial performance (Hmieleski, 2008; He, 2015; Niu, 2015; Wang, 2015; Guan& Luo, 2009; Xie et al., 2013), but the research groups of existing studies mainly college student entrepreneurs, female entrepreneurs, etc., there is no empirical research on whether the level of psychological capital of the digital entrepreneurial group has an impact on entrepreneurial performance. Due to the high failure rate of digital entrepreneurship (Ammirato et al., 2019), digital entrepreneurs will feel anxious and feel greater entrepreneurial pressure. Positive psychological capital, as a resource owned by individuals, can relieve stress (Luthans et al., 2020; Baron et al., 2016), improve entrepreneurial performance (Grozinger et al., 2022; Hmieleski, 2008; Esfandabadi et al., 2019) and have can help predict entrepreneurial success (Luciano et al., 2020; Juhdi et al., 2015; Jiang & Gao, 2013; Baluku et al., 2016).

Problem Statement

According to Luthans et al. (2004), economic capital refers to "what people have", human capital refers to "what people know", and social capital refers to "who people know". Psychological capital refers to knowing "who you are". Based on the theory of psychological capital, in the process of entrepreneurship, psychological capital will give entrepreneurs the ability to persevere and recover from failure under uncertain conditions. Baron and Franklin et al. (2016) found in their research that entrepreneurs with a higher level of psychological capital tend to experience lower levels of stress in the new entrepreneurial process; Entrepreneurs who lack psychological capital will face entrepreneurial failure or choose to

quit, because they cannot bear the pressure. Arshi et al. (2020) found through empirical research that positive psychological capital regulates the negative impacts encountered by entrepreneurs over time to significantly alleviate entrepreneurial pressure. A higher level of psychological capital allows the founding CEO to better lead his company in a dynamic environment (Hmieleski & Carr et al., 2015). For individual entrepreneurs, psychological capital is an important individual characteristic that can affect the success or failure of entrepreneurship, and it is also the most critical personal psychological resource for all SME entrepreneurs to become successful entrepreneurs (Hall & Chandler, 2005; Hmieleski & Carr, 2007; Peters on et al., 2011) Is. This means that the inclusion of psychological state variables (such as positive psychological capital) will enhance entrepreneurs' understanding of entrepreneurial success. And some scholars believe that the higher the personal psychological resources, the higher the chances of entrepreneurs to achieve lasting entrepreneurial success (Hmieleski & Corbett, 2008; Newman et al., 2013). The digital economy is changing the production, consumption and distribution methods of the national economy, providing the country with a more efficient economic operation model (Xu & Zhang, 2020). In this macroeconomic context, the vigorous development of digital technology continues to provide people with potential entrepreneurial opportunities. In the ever-changing digital technology revolution, digital entrepreneurs who ensure a positive level of psychological capital will be more conducive to the development of digital entrepreneurship. Friend et al. (2016), McKenny et al. (2013) found through empirical research that having positive psychological capital will affect individual cognition. Psychological capital is a key resource that can change individual cognition. Based on self-determinism, the essence of human beings is an organism with subjective initiative, which has the innate potential for inner self-development and realization (Deci & Ryan, 1995), which means that individuals can consciously recognize things and adjust behaviors according to self-cognition. Social cognitive theory and planned behavior theory indicate that the impact of external conditions on individuals and individual behavior are controlled by individual cognition. Psychological capital can affect the behavior of entrepreneurs by affecting their cognition and decision-making. Psychological capital is the "heart" of entrepreneurs' venture capital, which can set goals for entrepreneurs and guide their progress (Zhang & Hu, 2012). Therefore, when psychological capital, as the newly emerging fourth largest capital, can well explain entrepreneurial activities such as entrepreneurial behavior and predict entrepreneurial success compared with economic capital, human capital, and social capital, then its position in the field of entrepreneurial research and the role in practice has become increasingly prominent and has become an integral part of entrepreneurship research. Combining the above theoretical background, this thesis believes that psychological capital is suitable for analysis and discussion in the field of digital entrepreneurship. Then, in the follow-up research, this thesis will answer how the mechanism of interaction between psychological capital and entrepreneurial performance of digital entrepreneurs is formed? (Zhu et al. 2020)

Research objectives

The core objective of this study is to clarify the relationship among digital entrepreneurs' psychological capital, entrepreneurial ability, entrepreneurial performance and environmental dynamism, in order to find reasonable strategies to improve digital entrepreneurs' psychological capital and entrepreneurial performance through research findings. The specific goals are as follows :1. Discuss the influence of psychological capital of digital entrepreneurs on entrepreneurial performance; 2. Discuss the influence of psychological capital of digital entrepreneurs on entrepreneurial ability; 3. Discuss the influence of entrepreneurial ability of digital entrepreneurs on entrepreneurial performance; 4. Discuss the mediating role of entrepreneurial ability between psychological capital and entrepreneurial performance of

digital entrepreneurs; 5. Discuss the moderating role of environmental dynamism between psychological capital and entrepreneurial performance in digital entrepreneurship; 6. Discuss the mediating role of environmental dynamism between digital entrepreneurial ability and entrepreneurial performance.

Research questions

According to the problem statement, the specific questions to be addressed in this research are as follows: 1. Does psychological capital of digital entrepreneurs positively affect entrepreneurial performance? 2. Does psychological capital of digital entrepreneurs positively affect entrepreneurial ability and does the entrepreneurial ability of digital entrepreneurs positively affect entrepreneurial performance? 3. Does entrepreneurial ability play a mediating role between psychological capital and entrepreneurial performance of digital entrepreneurs? 4. Does environmental dynamism play a positive moderating role between psychological capital and entrepreneurial performance in digital entrepreneurship? 5. Does environmental dynamism play a positive moderating role between digital entrepreneurial ability and entrepreneurial performance?

Scope of study

Entrepreneurship, defined as the process of identifying, evaluating, and exploiting opportunities, is an important driver of economic development. As a new phenomenon combining digital technology and entrepreneurial activities, digital entrepreneurship has become a new form of entrepreneurial development, which is profoundly changing the mode of economic growth, the form of the real economy and the layout of industries. According to statistics from the China Academy of Information and Communications Technology, the scale of my country's digital economy will reach 39.2 trillion yuan in 2020, accounting for more than one-third of GDP, and digital entrepreneurship activities have played a key role in it. Digital entrepreneurship is a typical interdisciplinary phenomenon. From a practical perspective, the vigorous development of digital entrepreneurship depends not only on the rise of digital technologies such as big data, cloud computing, and artificial intelligence, but also on the upsurge of "mass entrepreneurship and innovation" that has emerged in my country in recent years. From a research perspective, digital entrepreneurship originated from entrepreneurial management, and its origin can be traced back to the Internet entrepreneurship more than ten years ago, especially the rise of e-commerce, but as an academic term, digital entrepreneurship first appeared in the field of information systems. For digital entrepreneurship research, the two fields of entrepreneurship and information systems have simultaneously formed a relatively stable research tradition. In recent years, the attractiveness of digital entrepreneurship research has risen rapidly. Scholars from different fields such as information systems, entrepreneurial innovation, and strategic management have joined in digital entrepreneurship research, and its interdisciplinary nature has become increasingly prominent. This article aims to reveal the mechanism of the relationship between psychological capital and entrepreneurial performance in the context of digital entrepreneurship, clarify the concept connotation of psychological capital, digital entrepreneurship ability, entrepreneurial performance, and environmental dynamism of digital entrepreneurs; reveal the impact of psychological capital on entrepreneurial performance of digital entrepreneurs. The role of performance has enriched the application of multiple theories in the field of digital entrepreneurship.

Literature review

Psychological capital of digital entrepreneurs

Combining psychological capital theory and cognitive theory, entrepreneurial psychological capital is the superposition of a series of individual key resources that can positively affect entrepreneurs' cognition and contribute to career success. Psychological capital, as a key resource that can change individual cognition, is one of the necessary conditions for entrepreneurs in the process of starting a business. Self-determination theory believes that individuals can consciously recognize things and adjust individual behaviors subjectively, indicating that increasing the level of psychological capital can effectively improve individual cognition levels and affect individual behaviors. Combining the previous theories and reviews, psychological capital can positively affect individual cognition and behavior, and can have a positive impact on entrepreneurial activities such as entrepreneurial ability and entrepreneurial performance. Digital entrepreneurship is characterized by uncertainty and environmental dynamism. Relevant studies have shown that psychological capital can better influence entrepreneurial performance in a dynamic environment (Hmieleski et al., 2015). Therefore, this thesis believes that psychological capital is suitable for analysis and discussion on digital entrepreneurs. Anglin et al. (2018) found that entrepreneurs who transmit positive psychological capital signals will have excellent fundraising performance, and psychological capital has a positive predictive effect on crowdfunding performance (Zhu et al. 2020).

Entrepreneurial performance

Although entrepreneurial performance is mainly discussed from the organizational level and the enterprise level, there is still no lack of research on the individual performance of entrepreneurs in academia. Because in the exploration performance of individual entrepreneurs, entrepreneurial groups such as migrant worker entrepreneurs and digital entrepreneurs have relatively small entrepreneurial volumes, and the specific industries they target are also different. Therefore, there will be many difficulties in the consideration of entrepreneurs' personal performance. Therefore, scholars have tried to measure entrepreneurial performance subjectively through entrepreneurs' personal satisfaction (Covin, 1994; Cooper & Artz, 1995; Kropp & Lindsay et al., 2006). Zhou and Jin et al. (2020) found that entrepreneurs subjectively believe that their economic status is higher, their future expectations are more optimistic, or their social capital is more. The more it helps to alleviate the negative impact of entrepreneurship on life satisfaction, thereby improving subjective entrepreneurial performance (Zhu et al. 2020). From the enterprise level, entrepreneurial performance is mainly composed of financial performance and non-financial performance (Yu, 2013). Among them, financial performance mainly includes corporate revenue and corporate profits; non-financial performance includes corporate innovation capabilities, market share, and customer satisfaction. Wang and Xue (2010) divided entrepreneurial performance into three categories: financial performance, survival performance and overall performance. From the organizational level, entrepreneurial performance is divided into organizational performance and individual performance (Wang & Ma et al., 2020).

Digital entrepreneurship ability

Entrepreneurship ability is an important factor for entrepreneurial success (Kyndt & Baert, 2015). Entrepreneurship ability can be discussed from both organizational and individual perspectives. The organizational level explores the dynamic capabilities of the enterprise; the individual level explores the entrepreneur's personal capabilities (Arend, 2014). Studies have shown that individuals' favorable perceptions of their entrepreneurship ability in general are more likely to influence entrepreneurial decisions (Koellinger et al., 2007; Lafuente et al., 2007; Townsend et al., 2010). In the organizational theory faction, dynamic capabilities

already have a solid theoretical foundation, but entrepreneurial capabilities involve the intersection of psychology, pedagogy and other disciplines, resulting in incomplete theories that explore entrepreneurial ability at the individual level (Zhang & Zhao, 2017). Ahmad et al. (2011) mainly studied entrepreneurs in their research on entrepreneurship ability, so they added "personal ability" to the dimension of entrepreneurship ability to study the impact on the entrepreneurial success of SMEs. Ning (2017) believes that entrepreneurship ability is the comprehensive ability of knowledge, attitude and skills such as resource integration, team building and fund preparation that potential entrepreneurs need to possess if they want to carry out a certain entrepreneurial behavior.

Environmental dynamism

The entrepreneurial environment is characterized by randomness, dynamism, and disturbance (Emery & Trist, 1965). Among them, environmental dynamism refers to the speed of environmental change and its degree of uncertainty, which is a key variable affecting organizational behavior and performance (Liang et al., 2010). Through the theory of resource dependence, individual entrepreneurs need to adjust themselves in a turbulent environment and strive to take the initiative. In the process of digital transformation, entrepreneurs may lack experience and skills related to the market environment (Aidis et al., 2008). Because the current digital entrepreneurial environment in my country still lacks a sound legal system to regulate the behavior of digital companies and entrepreneurs. With the continuous improvement and adjustment of the institutional environment, it will have a crucial impact on digital entrepreneurship and digital entrepreneurs. Chen (2018) based on the research of Dess and Beard (1984), believes that environmental dynamism refers to a state in which the environment of entrepreneurs or their enterprises is constantly changing and the speed, direction and degree of change cannot be predicted in advance. And through the analysis of the failure attribution of entrepreneurs in the case, it is found that the personal ability of entrepreneurs plays a more significant role in the survival and development of entrepreneurial enterprises in a dynamic environment. Combined with the context of digital entrepreneurship, this thesis argues that environmental dynamism refers to the ever-changing environmental state of digital technology, consumer preferences, and policy systems encountered by entrepreneurs in digital entrepreneurship. (Zhu et al. 2020)

Methodology

Research Design

According to the research idea of "proposing problems-analyzing problems-solving problems", this thesis finds the entry point by observing and combining current events and consulting relevant literature in the context of the vigorous development of the digital economy. On this basis, the research of this thesis is proposed question. Then, the qualitative comparative analysis method is used to analyze the configuration that affects the psychological capital of digital entrepreneurs to solve the problem of "what factors affect the formation of psychological capital of digital entrepreneurs". Then, according to relevant theories such as social cognitive theory and planned behavior theory, the mechanism model of "psychological capital - entrepreneurial performance of digital entrepreneurs" is constructed, and relevant hypotheses are put forward and empirical research design is carried out. In the pre-investigation stage, exploratory factor analysis was used to determine the structural validity of the questionnaire, and the questionnaire was revised; In the formal empirical research stage, methods such as reliability and validity analysis were used to test the robustness and accuracy of the questionnaire. Structural equation modeling was used to test the proposed hypotheses.

Data collection

According to scholars' definition of digital entrepreneurs in a broad sense (Davidson et al., 2010; Sussan & Acs, 2017; Delacroix et al., 2019), this thesis selects digital entrepreneurs on the Douyin and Kuaishou short video platforms as research objects for research. This study used a questionnaire survey method to collect data and processed and analyzed data through fsQCA fuzzy set qualitative analysis. When fsQCA fuzzy set qualitative analysis method is used to study macro-objects (such as enterprises, organizations, etc.), small and medium samples can achieve the effectiveness of sample research; while the research in this thesis on the individual psychology and behavior of digital entrepreneurs belongs to the micro level, so we choose Research on large sample data. To screen out digital entrepreneurs among platform users, in terms of the screening of research objects, this study first analyzes the user's account and observes whether it has opened an online store associated with the account. If no online store of the platform has been opened, the user's video data will be analyzed to see whether he has opened a cross-platform online store or founded a company. Since the subjects are all looking for and contacting on the digital platform, the form of distribution of the questionnaire is online. After editing the questionnaire on "Questionnaire Star", send the questionnaire link to the account of the digital entrepreneur by private message. From August 2022 to December 2022, a total of 400 questionnaires were distributed for 4 months. The questionnaires with the same answers before and after and the reverse items were obviously contradictory to the answers before and after the questions were deleted. There were 310 valid questionnaires, and the effective recovery rate was 77.5 %.

Target population

The term "target population" refers to a certain group of people that the researchers would like to focus their attention on while carrying out the study (Sekaran & Bougie, 2016). There are many distinct target groups that may be found in various types of research; therefore, we need to choose which target population will provide us with the best opportunities to collect data and information for our study. The individual psychology and behavior of digital entrepreneurs of China are the population that will serve as the focal point of this investigation. To screen out digital entrepreneurs among platform users, in terms of the screening of research objects, this study first analyzes the user's account and observes whether it has opened an online store associated with the account. If no online store of the platform has been opened, the user's video data will be analyzed to see whether he has opened a cross-platform online store or founded a company. Since the subjects are all looking for and contacting on the digital platform, the form of distribution of the questionnaire is online.

Sampling frame and sampling location

The digital entrepreneurs among platform users were the focus of this research. The sampling frame consisted of a list of all digital entrepreneurs of China that participated in this study. There are no location limits, for all the digital entrepreneurs of China include in the sampling frame.

Sampling size

The size of the sample that is collected from the whole population is known as the sampling size. The size of the sample should be large enough to eliminate the possibility of sampling errors and biases (Gill, Johnson & Clark, 2014). Full population research will be impractical and prohibitively expensive to carry out; instead, establishing a sampling size will be the most effective way to cut down on the time and money required to carry out a study. To our study, the population that we focused on all digital entrepreneurs of China. This study choose 400 samplings.

Questionnaire design and instrumentaion

Regression analysis and other research methods analyze the sample data, but each sample in the fuzzy set qualitative analysis method is a case, and its research method is cross-case analysis, so the scale information developed according to regression and other methods degree and validity indicators are not applicable in fuzzy set qualitative analysis. Therefore, to ensure the quality of the questionnaire, this study made the following points in the preparatory work of the questionnaire design to improve the quality of the questionnaire.

- (1) The questionnaire design mainly selects foreign mature scales and implements strict translation and back-translation of the English scales.
- (2) Determine the structure of the questionnaire.
- (3) Determination of the relationship between questionnaire variables.
- (4) Determination of variable structure.
- (5) Commitment to the confidentiality of the questionnaire.
- (6) Reasonably control the time for answering the questionnaire.
- (7) Set reverse item screening and eliminate low-quality questionnaires.

Measurement of dependent variable

Entrepreneurial performance at the enterprise level is usually divided into dimensions such as financial performance, growth performance, survival performance or innovation performance. However, due to the wide range of industries targeted by individual digital entrepreneurs, the scale of entrepreneurship is also very different. Therefore, the personal performance measurement of digital entrepreneurs is difficult to measure through financial indicators. Scholars have tried to measure their personal performance through the subjective evaluation of entrepreneurs (Covin, 1994; Cooper & Artz, 1995 ; Kropp & Lindsay et al., 2006 ; Guo & Ding , 2013) . Through empirical testing, these scales have good reliability and validity. This article will combine the items in the measurement table of Guo and Ding (2013) , Su and Peng (2016) and Wang and Ma (2020) to measure the individual subjective performance of digital entrepreneurs. Items are shown in Table 3.1.

Table 3- 1 Measurement items of entrepreneurial performance

variable name	serial number	item	source
entrepreneurial performance (DEP)	DEP 1	Personal income has greatly increased compared to before digital entrepreneurship ;	Guo Hongdong and Ding Gaojie (2013)
	DEP 2	has been greatly improved compared to before digital entrepreneurship ;	Su Lanlan and Peng Yanling and others (2016)
	DEP 3	Carrying out digital entrepreneurship will make you feel very happy;	Wang Zhuandi and Ma Hongyu and others (2020)
	DEP 4	The goal of the pre -digital start-up has been realized .	

Measurement of independent variables

Digital psychological capital, the " PCQ-24 Psychological Capital Scale" compiled by Luthans et al. (2007) was selected , and adjustments were made based on the relevant deletions of the scale by Cheng (2015) . See Table 3.2 for detailed measurement items.

Table3- 2 Psychological capital measurement scale of digital entrepreneurs

higher order dimensions	lower dimension	serial num ber	item
Digital Entrepreneurial Psychological Capital (DEPC)	Digital Entrepreneurship Self-Efficacy	ES 1	Believe in your ability to analyze long-term problems and find solutions;
		ES2 _	In the process of digital entrepreneurship , believe that you can set good goals;
	Digital Entrepreneurship Hope	EH 1	If you find yourself stuck in a digital startup , you can think of many ways to get out;
		EH 2	You can think of many ways to achieve your current entrepreneurial goals;
	Digital Entrepreneurial Resilience	ER 1	When encountering setbacks (cyber violence, malicious bad reviews) in digital entrepreneurship, it is difficult for you to recover from them and move on ;
		ER 2	comfortable with the stress of being a digital startup ;
	Digital Entrepreneurship Optimism	EO 1	In digital entrepreneurship , when faced with uncertainty, you usually hope for the best;
		EO 2	In current startups, things never go the way you want them to.

Source of data: Luthans et al. (2007), Cheng Cong (2015) and others

Measurement of Measurement of mediator variables

In terms of measuring the entrepreneurial ability of digital entrepreneurs, this study refers to Zhu 's (2020) division of digital entrepreneurship ability into digital entrepreneurship dynamic ability and digital entrepreneurship strategic ability. Among them, the dynamic capability of digital entrepreneurship refers to the ability of digital entrepreneurs to dynamically adjust with the changing environment (Autio et al., 2018) . Because there are few empirical studies in the field of digital entrepreneurship ability, this article will refer to Teece and Pisano (1994) , Teece (2007) , Dong and Baoshan (2012) , Ma and Dong (2014) for the measurement scale of dynamic ability , and make adaptive adjustments. The adjusted digital entrepreneurship dynamic capability scale has 6 items in total, and the specific content is shown in table 3.3 below. According to Zahra and Nambisan (2012), digital entrepreneurial strategic capabilities refer to the ability of digital entrepreneurs to formulate and execute strategic goals in a foresighted manner based on the current situation. In terms of the measurement of the dimension of digital entrepreneurial strategic capability, this article refers to Gershon (2000), Xie et al. (2006), Gou (2010) , Zhang (2012) and Xiang et al. (2013) to adjust the relevant measurement of entrepreneurial strategic capability . There are 4 items in the adjusted digital entrepreneurship strategic capability scale, see Table 3.4 for details.

Table 3-3 Measurement of the Dimensions of Dynamic Capabilities of Digital Entrepreneurship

dimension	serial number	item
Digital Entrepreneurship Dynamic Capabilities (DDC)	DC1	Can be keenly aware of the unmet needs of the digital market;
	DC2	Can identify valuable digital business opportunities from changes in the external environment;
	DC3	Can quickly enter the target market;
	DC4	Possess the innovative ability of digital products or services, such as imitation innovation, etc.;
	DC5	Able to continuously learn relevant digital technologies and knowledge in the process of digital entrepreneurship ;
	DC6	Able to communicate frequently with peers and stakeholders to obtain useful information.

Source: Documentation

Table 3- 4 Measurement of Dimensions of Digital Entrepreneurial Strategic Capabilities

dimension	serial number	item
Digital Entrepreneurship Strategic Capabilities (DSC)	SCI	Have a clear vision for the future of digital entrepreneurship ;
	SC2	Ability to formulate specific strategic plans for the realization of digital entrepreneurial goals and prepare Options;
	SC3	Have information analysis, trend judgment, decision-making and adjustment for digital entrepreneurial projects
	SC4	Integral strategic analysis ability: digital entrepreneurship strategies according to changing circumstances.

Measurement of the adjusted variable

In this thesis, the measurement of environmental dynamism is based on the environmental characteristics scale developed by Jansen and Bosch et al. (2006) , combined with Sun and Li et al. (2018) , Liu and Sun et al . Empirical research on environmental dynamism mainly measures environmental dynamism from changes in industries, customers, and competitors, and specifically uses industry competition intensity, competitors' adjustment capabilities, and changes in customer preferences to express environmental dynamism. The specific items adjusted according to the digital entrepreneurship situation are as follows in table 3. 5.

Table 3- 5 Measures of environmental dynamism Constructs

dimension	serial	item	source
environmental dynamics (ED)	ED1	The industry competition of digital entrepreneurship is very fierce;	Jansen and Bosch et al., 2006 ; Sun Rui et al., 2018 ; Liu Di and Sun Jian et al., 2021
	ED2	New marketing methods emerge in an endless stream in the industry;	
	ED3	The elimination rate of products or services provided in the industrv is high;	
	ED4	The consumption preferences of customers in the industry change rapidly;	
	ED5	Competitors are highly adaptable.	

Findings

Demographic Profile

Under the background of the digital economy, digital entrepreneurs use digital technology to carry out digital entrepreneurial activities and are mainly responsible for the decision-making and continuous operation of the company's digital strategy, which is an important factor leading and promoting the development of digital entrepreneurship. Based on the recovered samples, this thesis describes and analyzes the basic information of the respondents in terms of gender, age, education, and years of entrepreneurship, as shown in Table 4.1 below. Among them, in terms of gender, most of the respondents were men, accounting for 58.7% of the total number, 17.4% more than women; in terms of age, the surveyed digital entrepreneurs were mainly between 25-35 years old, and those under 45 years old The proportion of the population is 92.3%, and most of them are young digital entrepreneurs; in terms of educational background, 80.6% of the population has a college degree or a bachelor's degree, and the crowd's education is mainly distributed in colleges and above ; The proportion of people who have been in business for 2 years is the highest, at 49.7%, followed by the proportion of people who have started their business for 2 years, accounting for 28.7%.

Table 4- 1 Descriptive analysis of the basic information of the respondents (N=310)

Attributes	category	Frequency	Proportion(%)
gender	male	182	58.7
	female	128	41.3
age	under 25 years old	63	20.3
	25-35 years old	148	47.7
	35-45 years old	75	24.2
	over 45 years old	twenty four	7.7
academic qualifications	high school or below	11	3.5
	high school or technical secondary school	7	2.3
	specialist	167	53.8
	undergraduate	83	26.8
	Master degree and above	42	13.6
Years of Entrepreneurship	1 year or less	twenty three	7.4
	1-2 years	154	49.7
	2-4 years	89	28.7
	over 4 years	44	14.2

Reliability and Validity

Reliability analysis of the scale

In this chapter, the reliability analysis still uses Cronbach's the α reliability coefficient tests the degree of consistency of the research variables in the questionnaire on each measurement item. Devellis (1991) believed that Cronbach's the alpha coefficient is greater than 0.7. There are 5 variables in this study, which are digital entrepreneurial psychological capital, digital entrepreneurial dynamic capability, digital entrepreneurial strategic capability, entrepreneurial performance, and environmental dynamism. The reliability analysis of each variable is carried out below, and the measurement results are shown in table 3. 16. It can be seen from table 3.16 that the Cronbach's α coefficients of digital entrepreneurs' psychological capital, digital entrepreneurial dynamic ability, digital entrepreneurial strategic ability, entrepreneurial performance, and environmental dynamism scale are 0.901, 0.872, 0.84, 0.861, and 0.820, respectively. All are greater than 0.7, indicating that the variables have good internal consistency reliability. And CITC values are greater than 0.5; indicating that the measurement items basically meet the research requirements. From "Alpha if item Deleted" value, deleting any question will not cause Cronbach's the α value increases, which also shows that the above variables have good reliability.

Validity analysis of the scale

Validity refers to the degree to which a measurement tool can really measure what it wants to measure. This study uses content validity, convergent validity, and discriminant validity to judge. In the pre-investigation, the construct validity has been tested by EFA to ensure the rationality of the model. To ensure the validity of the content, this study uses methods such as expert consultation and group discussions to subjectively judge the validity of the scale text with professional knowledge to further infer whether the selected scale can correctly measure the concept. In the formal investigation of this study, Amos26.0 software will be used to construct a confirmatory factor analysis structural equation model (see Figure 3.1) , and CFA method will be used to retest its structural validity and convergent validity.

Table 3- 6 Reliability Analysis of Formal Survey Scale

dimension	item	CITC	SMC	Alpha if item Deleted	Cronbach's a
DEPC	ES1	.842	.719	.876	.901
	ES2	.661	.468	.891	
	EH1	.636	.449	.893	
	EH2	.638	.437	.892	
	ER1	.644	.444	.892	
	ER2	.680	.474	.889	
	EO1	.657	.460	.891	
	EO2	.764	.609	.881	
DDC	DC1	.855	.732	.822	.872
	DC2	.605	.406	.861	
	DC3	.652	.476	.853	
	DC4	.634	.454	.856	
	DC5	.652	.461	.854	
	DC6	.666	.470	.851	
DSC	SC1	.740	.556	.767	.840
	SC2	.627	.394	.816	
	SC 3	.668	.468	.799	
	SC4	.656	.444	.804	
DEP	EP1	.816	.669	.779	.861
	EP2	.672	.481	.837	
	EP3	.637	.440	.852	
	EP4	.713	.540	.820	
ED	ED 1	.715	.518	.741	.820
	ED 2	.603	.364	.792	
	ED 3	.605	.379	.790	
	ED 4	.650	.445	.770	

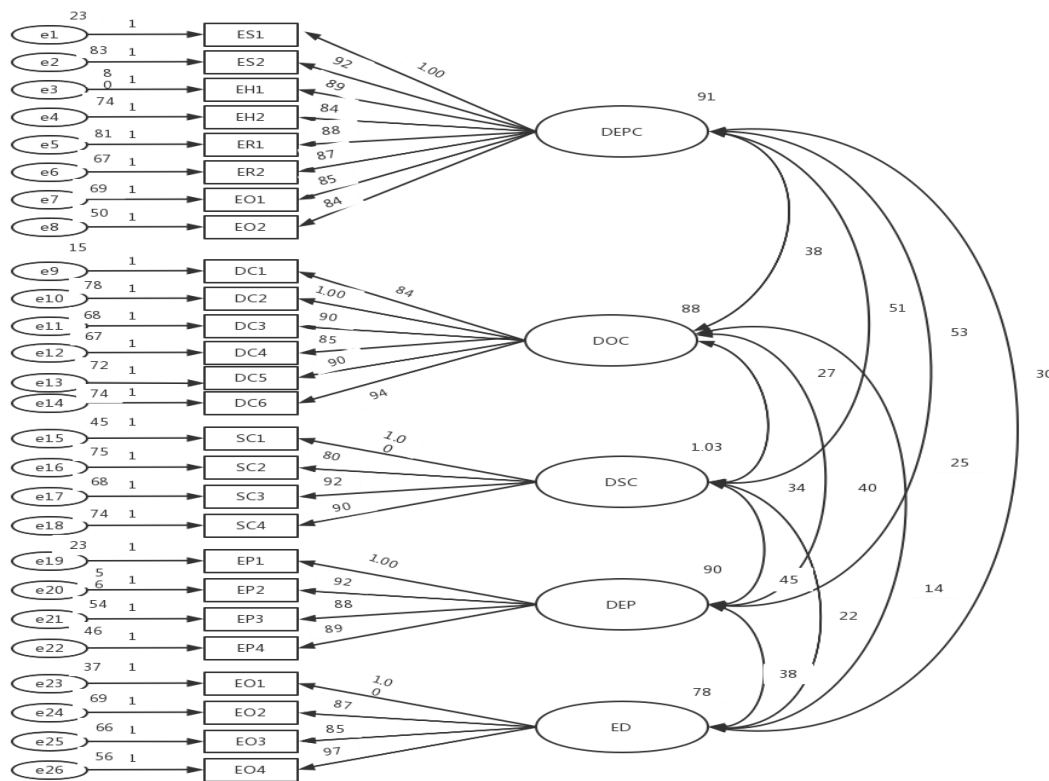


Figure 3- 1 CFA Validation Factorial Structural Equation Model

5 factors that need to be tested in the verification factor structural equation model, which are digital entrepreneurial psychological capital, digital entrepreneurial dynamic ability, digital entrepreneurial strategic ability, entrepreneurial performance, and environmental dynamism. It contains 26 measurement items in total, and the CFA is implemented. After analysis, Table 3.17 is obtained. It can be seen from Table 3.17 that CMIN/DF is 1.188, which is within the

standard range of less than 3; the statistical value of AGFI is 0.89 and greater than 0.8, which is within the acceptable range; the statistical values of GFI, NFI, IFI, TLI and CFI are all Reach the standard above 0.9; RMR is 0.059, less than 0.08; RMSEA is 0.025 and less than 0.08. Each fitting index is in line with the general research standards, so it can be concluded that the model has good structural validity.

Conclusion

1. This article interprets the results of the empirical test of the main effect, and draws the conclusion that " the psychological capital of digital entrepreneurs has a significant positive impact on entrepreneurial performance ", which is consistent with Hmieleski (2008), He (2015), Niu (2015). The research conclusions of Wang (2015), Guan and Luo (2009), Xie and Zhou (2013), Stajkovic and Luthans (1998) and Su (2018) are consistent. According to the theory of key psychological resources, entrepreneurial psychological capital is a kind of personal resource owned by entrepreneurs. Digital entrepreneurs usually bear greater psychological pressure, and according to the research of Baron et al. (2016), and individuals with positive psychological capital usually maintain a low-pressure state, so individuals with high levels of psychological capital are not easily affected by high-pressure environments. Therefore, this thesis draws a conclusion: the level of entrepreneurial psychological capital can positively affect entrepreneurial performance.

2. In the interpretation of the results of the empirical intermediary role, the main result is that digital entrepreneurial psychological capital positively affects entrepreneurial ability, and digital entrepreneurial ability positively affects entrepreneurial performance. Performance plays a partial intermediary role. Digital entrepreneurship ability is an important talent that digital entrepreneurs need to possess, and it plays an indispensable role in the process of digital entrepreneurship. Because in the context of digital entrepreneurship, digital technology is subverting the traditional entrepreneurial model, so the connotation of digital entrepreneurship ability is also different from traditional entrepreneurship ability, in which digital entrepreneurship dynamic ability can help digital entrepreneurs take the initiative; digital entrepreneurship strategy Capabilities can help digital entrepreneurs better assess the situation. To sum up, improving the level of psychological capital can promote digital entrepreneurial ability, digital entrepreneurial ability can significantly improve entrepreneurial performance, and digital entrepreneurial ability plays a mediating role between psychological capital and entrepreneurial performance.

3. In the test of the moderating effect, this thesis finds that environmental dynamism positively regulates the relationship between digital entrepreneurial psychological capital and entrepreneurial performance, the relationship between digital entrepreneurial ability and entrepreneurial performance, and the relationship between digital entrepreneurial dynamic ability and entrepreneurial performance. But There is no significant moderating effect between digital entrepreneurial strategic capabilities and entrepreneurial performance. This thesis believes that the reason for this situation is that the strategic capabilities of digital entrepreneurship in this study emphasize the comprehensive strategic analysis capabilities of digital entrepreneurs for formulating digital strategic plans and information analysis, which requires digital entrepreneurs to be able to make decisions according to changes in the environmental situation. Align your digital entrepreneurship strategy. Therefore, the strategic capabilities of digital entrepreneurship need to keep pace with the changes in the digital entrepreneurship environment. To sum up, in the context of digital entrepreneurship, it is necessary to consider the impact of environmental dynamism overall. (Zhu et al. 2020)

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