



Exploring the impact of Entrepreneurial Metacognition on Subjective Well-Being: the mediating role of Entrepreneurial Resilience

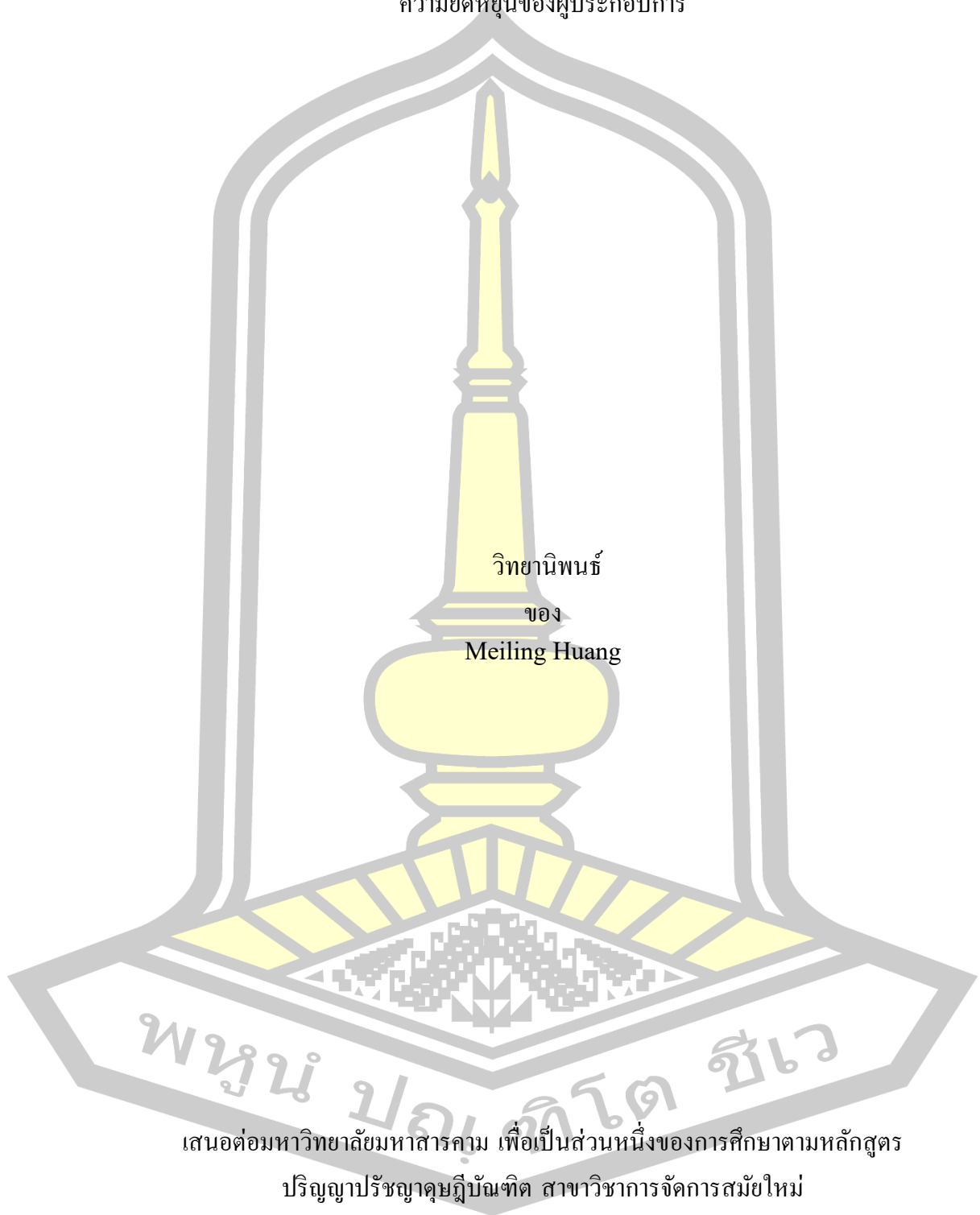
Meiling Huang

A Thesis Submitted in Partial Fulfillment of Requirements for
degree of Doctor of Philosophy in Modern Management

May 2025

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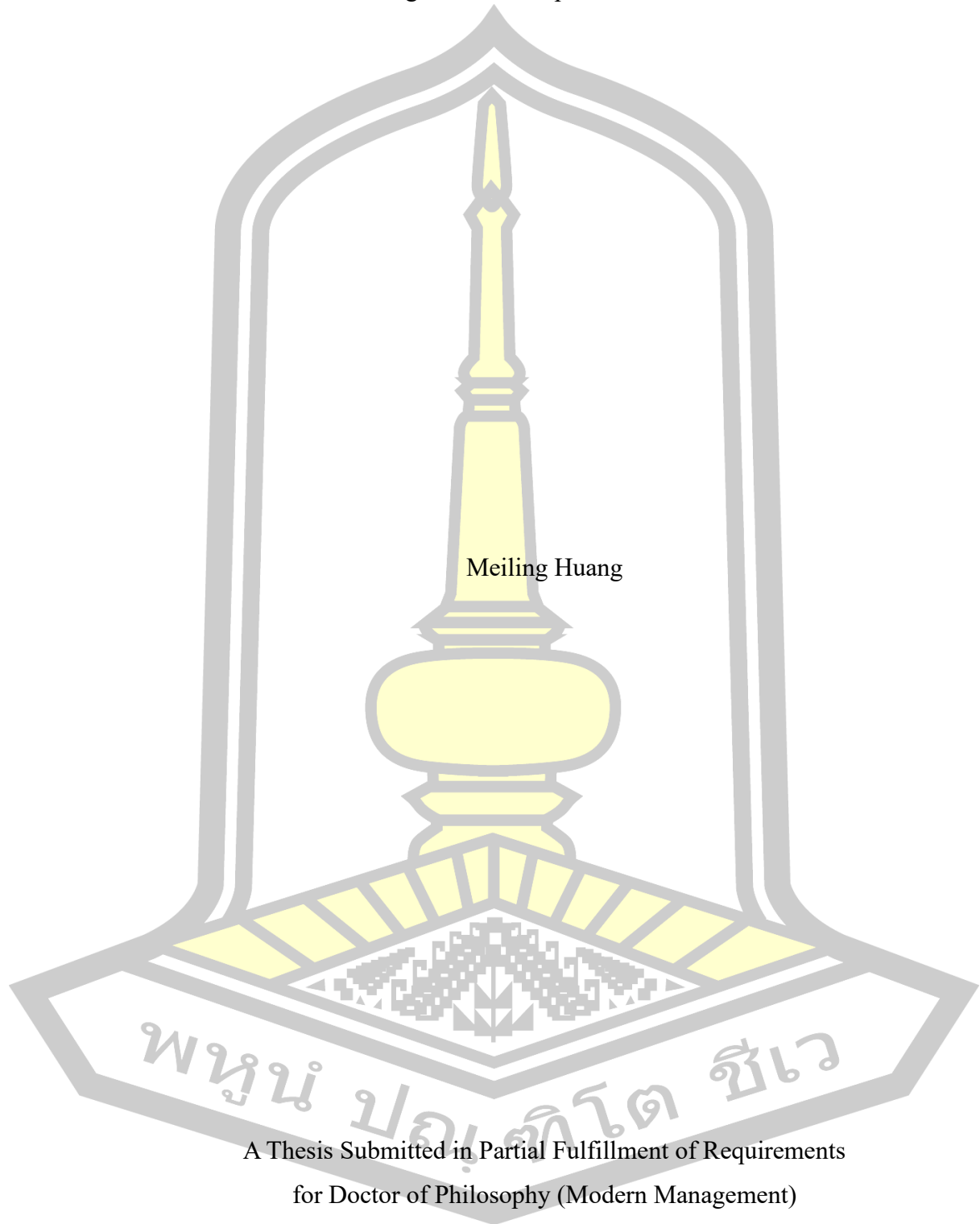


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The examining committee has unanimously approved this Thesis, submitted by Ms. Meiling Huang , as a partial fulfillment of the requirements for the Doctor of Philosophy Modern Management at Mahasarakham University

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TITLE Exploring the impact of Entrepreneurial Metacognition on Subjective Well-Being: the mediating role of Entrepreneurial Resilience

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ABSTRACT

The purpose of this study is to investigate the relationship between entrepreneurial metacognition (including entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience dimensions) and subjective well-being. This study investigates the relationship between entrepreneurial resilience and its antecedents, namely entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience. In addition, entrepreneurial resilience mediates the relationship between entrepreneurial metacognitive knowledge, entrepreneurial metacognitive experience and subjective well-being. Social support and entrepreneurial self-efficacy play a moderating role in the relationship between entrepreneurial resilience and subjective well-being.

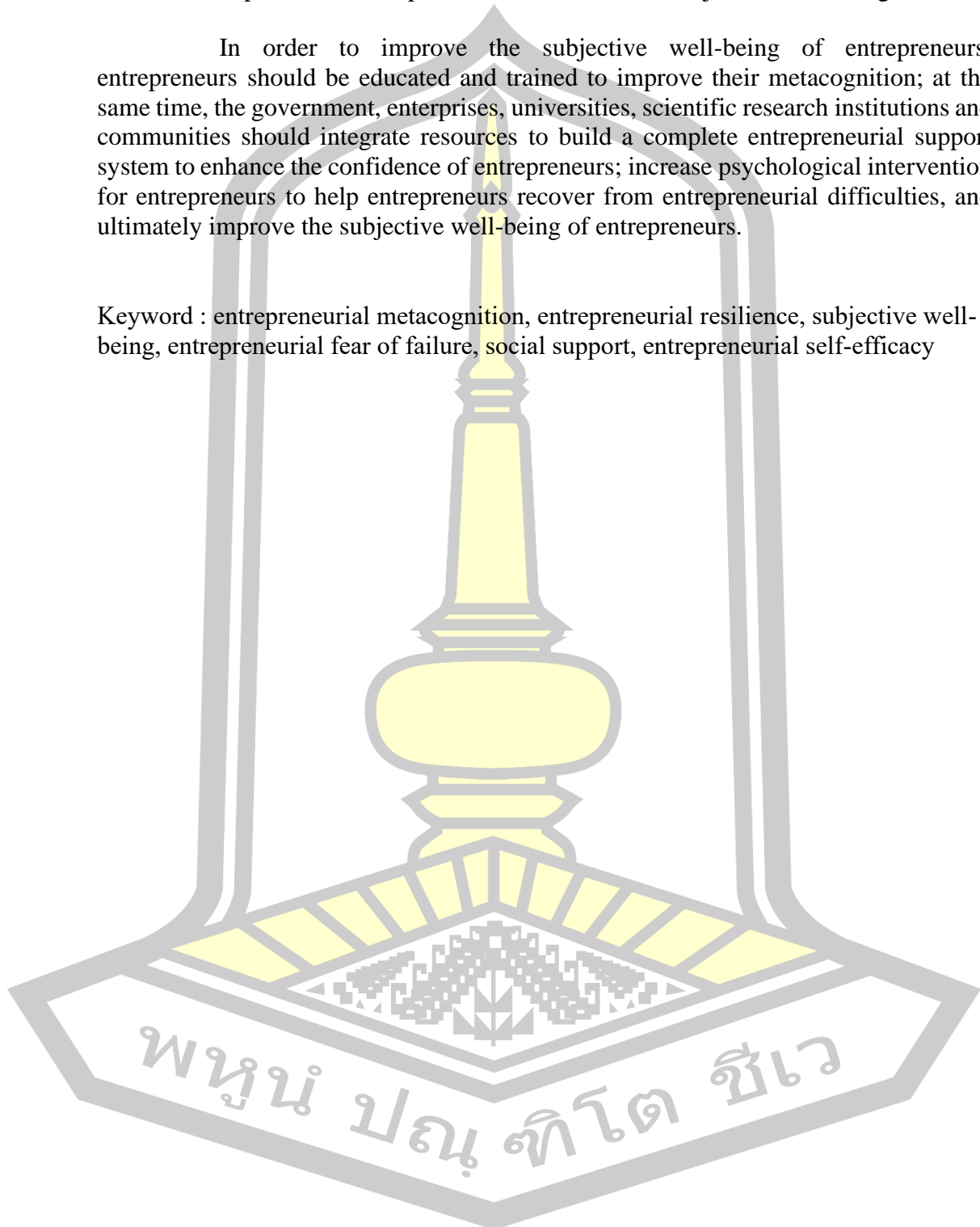
This study applies the entrepreneurial metacognitive theory to construct a conceptual model, selects entrepreneurs in the Guangdong-Hong Kong-Macao Greater Bay Area of China as the research subjects, sends questionnaires through online channels, and collects a total of 303 questionnaires. Smart PLS software was used to analyze 292 valid data through structural equation modeling to evaluate construct validity, reliability, and test the proposed hypotheses.

The results of this study are as follows: First, the study found that the two dimensions of entrepreneurial metacognition: entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience have a positive impact on subjective well-being; second, the two dimensions of entrepreneurial metacognition: entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience have a positive impact on entrepreneurial resilience; third, entrepreneurial resilience has a positive impact on subjective well-being, and entrepreneurial resilience plays a mediating role between entrepreneurial metacognition (including entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience) and subjective well-being. Fourth, the fear of entrepreneurial failure does not positively regulate the relationship between entrepreneurial metacognitive knowledge, entrepreneurial metacognitive experience and entrepreneurial resilience. Fifth, social support negatively regulates the relationship between entrepreneurial

resilience and subjective well-being; entrepreneurial self-efficacy positively regulates the relationship between entrepreneurial resilience and subjective well-being.

In order to improve the subjective well-being of entrepreneurs, entrepreneurs should be educated and trained to improve their metacognition; at the same time, the government, enterprises, universities, scientific research institutions and communities should integrate resources to build a complete entrepreneurial support system to enhance the confidence of entrepreneurs; increase psychological intervention for entrepreneurs to help entrepreneurs recover from entrepreneurial difficulties, and ultimately improve the subjective well-being of entrepreneurs.

Keyword : entrepreneurial metacognition, entrepreneurial resilience, subjective well-being, entrepreneurial fear of failure, social support, entrepreneurial self-efficacy



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Meiling Huang

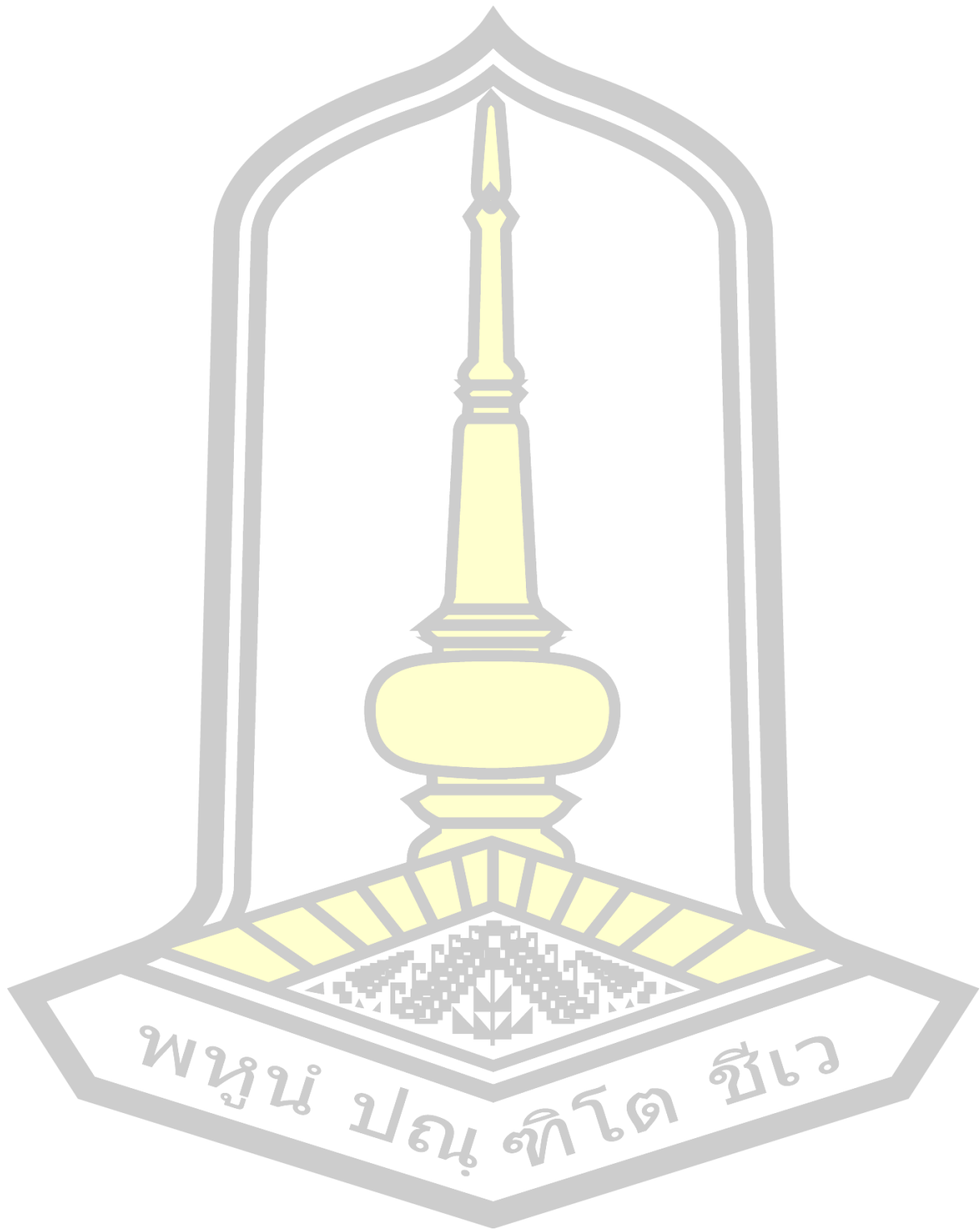


TABLE OF CONTENTS

	Page
ABSTRACT.....	D
ACKNOWLEDGEMENTS.....	F
TABLE OF CONTENTS.....	H
LIST OF TABLES.....	J
LIST OF FIGURES.....	K
Chapter I Introduction.....	1
1.1 Background and Rationale for the research.....	1
1.1.1 Background of the Research.....	1
1.1.2 Research Status Quo and Deficiencies.....	2
1.2 Problem Statement.....	5
1.3 Research Problem.....	10
1.4 Research Objective.....	11
1.5 Importance of Research.....	11
1.5.1 Theoretical Significance.....	12
1.5.2 Practical Significance.....	12
1.6 Scope of the Research.....	13
1.7 Research Structure.....	14
Chapter II Literature Review and Theoretical Framework.....	16
2.1 Theoretical Foundations.....	16
2.2 Review of Relevant Literature and Research Hypotheses.....	17
2.2.1 Metacognition.....	17
2.2.2 Entrepreneurial Resilience.....	24
2.2.3 Subjective Well-Being.....	34
2.3 Conceptual Model and Assumptions.....	44
Chapter III Research Methodology.....	47

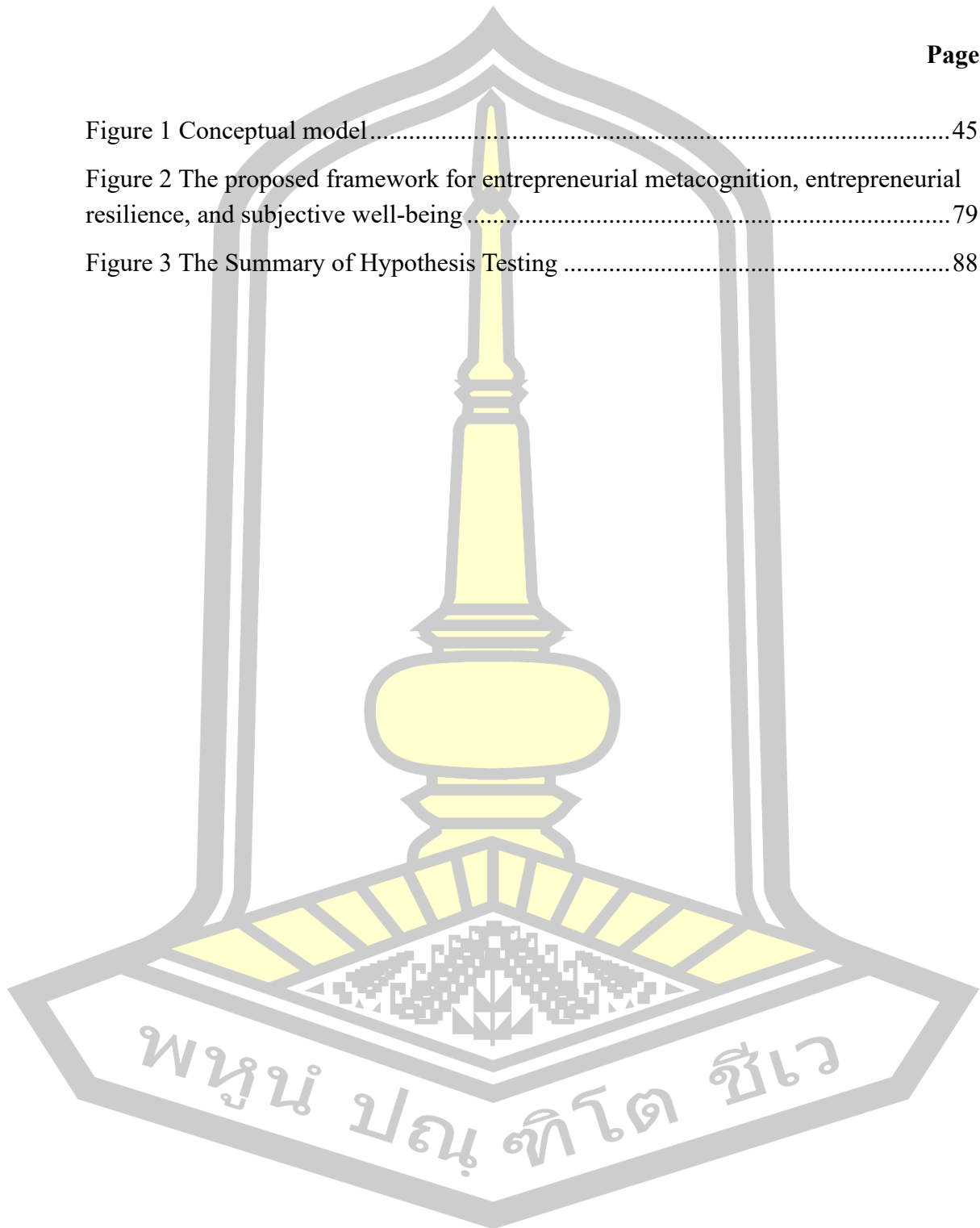
3.1 Research Sample.....	47
3.2 Research Variables	49
3.3 Data Collection	54
3.4 Statistical Techniques	58
3.5 Preliminary Research.....	62
3.5.1 Reliability Analysis	62
3.5.2 Common Method Bias Test (Common Method Bias, CMB).....	63
3.5.3 Factor Analysis	65
Chapter IV Empirical Research	69
4.1 Respondent Characteristics.....	69
4.2 Correlation Analysis	71
4.3 Measurement of Model Assessment.....	73
4.3.1 Confirmatory Factor Analysis (CFA) Surveys	73
4.3.2 Model Fit Analysis	76
4.3.3 Results from PLS-SEM.....	78
Chapter V Discussion and Conclusions.....	84
5.1 Discussions	88
5.2 Theoretical and Practical Contribution.....	92
5.2.1 Theoretical contributions.....	92
5.2.2 Practical Contributions.....	93
5.3 Limitations and Future Research Directions	94
5.4 Summary.....	95
APPENDIX.....	96
REFERENCES.....	103
REFERENCES	23
BIOGRAPHY	25

LIST OF TABLES

	Page
Table 1 Summary of conceptual overview of metacognition	18
Table 2 Summary of the conceptual synthesis of entrepreneurial resilience	26
Table 3 Summary of definitions of Subjective well-being	36
Table 4 Summary of measures of subjective well-being	43
Table 5 Summary of research assumptions.....	45
Table 6 The original items in this research	55
Table 7 Comparison between CB-SEM and PLS-SEM.....	59
Table 8 Reliability coefficients of the main constructs.....	63
Table 9 Common method bias test results	64
Table 10 Factor loadings of Main items	65
Table 11 Reasons to delete some items of ACAP construct	67
Table 12 Demographic Profile of Entrepreneurs in the Guangdong-Hong Kong-Macao Greater Bay Area.....	70
Table 13 Pearson's correlation matrix	71
Table 14 Confirmatory factor analysis with factor loadings, composite reliability and average variance extracted.....	73
Table 15 Convergent and Discriminant Validity.....	76
Table 16 Model Explanatory Power Metrics and Path Coefficient Significance Metrics	77
Table 17 Model Fit.....	77
Table 18 Results from PLS-SEM.....	80
Table 19 Summary of Hypotheses Testing Results.....	82
Table 20 Summary of the Results and Conclusions in All Hypothesis Testing.....	85

LIST OF FIGURES

	Page
Figure 1 Conceptual model.....	45
Figure 2 The proposed framework for entrepreneurial metacognition, entrepreneurial resilience, and subjective well-being.....	79
Figure 3 The Summary of Hypothesis Testing	88



Chapter I

Introduction

1.1 Background and Rationale for the research

1.1.1 Background of the Research

In today's era full of opportunities and challenges, entrepreneurial activities have become increasingly active and have become an important force for economic development and social progress. Entrepreneurs, as the core subjects of entrepreneurial activities, have attracted much attention for their pursuits, experiences and gains in the process of entrepreneurship.

In terms of entrepreneurs' pursuits, the traditional view tends to focus on a single dimension of financial performance, arguing that the main goal of entrepreneurship is to obtain economic benefits (most of the existing studies have examined the rewards of entrepreneurship in terms of financial performance). However, with deeper research on the phenomenon of entrepreneurship, more and more scholars realize that entrepreneurs' pursuit is not a single dimension, but covers multiple aspects. Subjective well-being, as the ultimate human pursuit, is equally crucial for entrepreneurs (Diener, Sapyta and Suh, 1998; Diener et al. 1985; Erdogan et al. 2012). Entrepreneurship is a very risky activity, and in the early years of entrepreneurship, entrepreneurs may not be able to achieve significant financial performance (as a very risky activity, it may be that the first few years of entrepreneurship are not characterized by significant financial performance). What, then, are the motivations that support entrepreneurs to continue to persevere in entrepreneurship in the face of adversity? This research argues that positive emotions such as increased self-esteem gained during the entrepreneurial process can give entrepreneurs a sense of fulfillment, and that these psychological dimensions are

an important part of entrepreneurs' pursuits, making it important to research entrepreneurs' gains from the psychological perspective of subjective well-being.

Entrepreneurship is a complex and challenging process in which entrepreneurs need to constantly reflect on their decisions and surroundings, develop deep knowledge, and overcome various adversities to lead their businesses to success (Bullough et al., 2014; Linnenluecke, 2015; Battisti et al., 2019). This ability demonstrated during the entrepreneurial process is known as entrepreneurial resilience. In recent years, entrepreneurial resilience has become an important research topic as environmental uncertainty increases and entrepreneurial firms need to constantly innovate to cope with change (Conz and Magnani, 2020; Iborra et al., 2019).

Metacognition is also gaining attention in the field of entrepreneurship as an individual's ability to control his or her own learning and cognition (Flavell, 1979, 1987; Schraw and Dennison, 1994). Metacognition helps individuals to self-reflect and adjust their cognitive strategies in response to changes in the environment, and individuals who effectively apply metacognition are able to reap benefits such as accurately estimating and updating knowledge, and monitoring and evaluating learning (Alter et al., 2007; Everson and Tobias, 1998). In entrepreneurial contexts, metacognition helps entrepreneurs to identify task and situational elements and achieve effective and adaptive cognitive functioning to better cope with changing environments (Brown & Eisenhardt, 1997; Flavell, 1979; McMullen & Dimov, 2013).

1.1.2 Research Status Quo and Deficiencies

Despite the gradual emergence of metacognition research in the field of entrepreneurship, our understanding of metacognition is still incomplete. On the one hand, there is still relatively little research on "metacognitive aspects of entrepreneurial decision making" (Shepherd et al., 2014), and the contextual factors that influence entrepreneurs and their metacognitive processes need to be further explored (Haynie et

al., 2012). Metacognitive processes require not only awareness of the self, but also the use of observation and interaction to understand the thinking of others (King, 1998), as well as facilitating a 'second view' during decision-making, activating more analytical, slow and logical reasoning (Graber et al., 2012). However, few entrepreneurship studies have focused on these aspects.

In terms of entrepreneurial resilience research, while there has been some attention to organizational resilience in the fields of economics and business management (Brand, 2009; Derissen, Quaas, & Baumgärtner, 2011; Lampel, Bhalla, & Jha, 2014), individual resilience, especially resilience in the specific context of entrepreneurs, has been less studied (Bullough & Renko, 2013; Bullough, Renko and Myatt, 2014; Korber and McNaughton, 2018). Existing research suggests that psychological resilience may be central to the entrepreneurial process, influencing the initiation, engagement, and performance of entrepreneurial endeavors (Manfield and Newey, 2018), but the antecedents of entrepreneurial psychological resilience remain understudied.

In terms of subjective well-being, entrepreneurship provides a rich context for research in subjective well-being. Entrepreneurship can bring both freedom, the opportunity to pursue passions and engage in meaningful work (Al-Dajani et Al., 2015; Rindova, Barry, and Ketchen, 2009; Baron, Franklin, and Hmileski, 2016; Cardon et Al., 2009), and it can also be extremely stressful due to high levels of uncertainty, change and risk, and a large number of responsibilities that bring great stress (Baron, Franklin and Hmileski, 2016; Hahn et al. 2012; Uy, Foo and Song, 2013), and these challenges and stresses can adversely affect entrepreneurs' subjective well-being (Baron, Franklin and Hmileski, 2016). However, there is relatively little research on how to enhance entrepreneurs' subjective well-being during the entrepreneurial process and the relationship between metacognition, entrepreneurial resilience and subjective well-being.

1.1.3 Rationale for the research

This research aims to explore the impact of entrepreneurial metacognition on subjective well-being and the mediating role of entrepreneurial resilience in it, which has important theoretical and practical implications.

From the theoretical level, this research will enrich and expand the relevant theories in the field of entrepreneurship. It will fill the gaps in existing research and provide new perspectives and ideas for the development of entrepreneurship theories through in-depth research of the relationship between metacognition, entrepreneurial resilience and subjective well-being. For example, further clarifying the role mechanism of metacognition in entrepreneurial decision-making, as well as the antecedents and consequences of entrepreneurial resilience, will help to improve the entrepreneurship theory system.

On a practical level, the results of this research will provide useful guidance for entrepreneurs. It will help entrepreneurs recognize the importance of metacognition and entrepreneurial resilience, and guide them to improve their subjective well-being by enhancing their metacognitive abilities and cultivating entrepreneurial resilience, so that they can better cope with various challenges in the entrepreneurial process and increase their entrepreneurial success rate. Meanwhile, this research is also an important reference value for policy makers and entrepreneurship educators to help them develop more effective policies and educational programs to support entrepreneurs' development.

In summary, based on the current research status and shortcomings in the field of entrepreneurship, this research has important research value and practical significance in exploring in-depth the impact of entrepreneurial metacognition on subjective well-being and the mediating role of entrepreneurial resilience from both theoretical and practical levels.

1.2 Problem Statement

1.2.1 What is entrepreneurial metacognition?

Metacognition refers to "thinking about thinking" and represents a person's conscious reflection on their own thinking (Schraw & Dennison, 1994). Entrepreneurial metacognition refers to how founders control and reflect on their own learning: their perceptions of themselves, their tasks, their situations, and their environments, their understanding of their perceptions of their own knowledge and abilities, and the ways or tools (de-biases) with which they must assess themselves (Flavell, 1979; Flavell, 1979; Flavell, 1979). (Flavell, 1979; Haynie, 2010; Mitchell, 2014; Shepherd, 2018). Individuals' metacognitive abilities help explain why some individuals who are inexperienced in the entrepreneurial process are better able than others to utilize feedback to align their decision-making policies with those of a sample of expert entrepreneurs. Metacognition represents an individual difference variable that can help explain the assimilation of new information into new knowledge and expand our understanding of the cognitive factors that influence entrepreneurial decision making (J. Michael Haynie Dean A. Shepherd Holger Patzelt, 2010).

1.2.2 Can entrepreneurial metacognition influence entrepreneurial resilience?

With regard to entrepreneurial behaviour, research suggests that entrepreneurs can develop resilience by reflecting on their experiences of failure. Failure analysis refers to the extent to which people in startups examine the "lessons" of failures through deliberate efforts, and entrepreneurs purposefully reflect on failures to deepen their understanding of failures that contribute to the achievement of strategic goals, thus purposefully dissecting the mechanisms and causes of past failures. The failure learning perspective fosters entrepreneurial resilience in high-tech firms (Yao et al., 2021). A limited number of studies have examined contingent factors associated with failure learning and resilience, such as constructive conflict (Danneels and Vestal, 2020), control points (Bulmash, 2016), and stakeholder engagement (Santoro et al., 2018).

Failure learning, in addition to emphasizing the normalization of failures, further emphasizes reflection on failures and a commitment to rationally searching for the real reasons hidden in failures (Danneels and Vestal, 2020). This systematic approach to learning enables members of a startup to learn to cope with failure through thoughtfulness and effort, which motivates the firm to choose a relatively positive attitude toward failure. This immediate retrospective review of failures can also be effective in a short period of time (Muehlfeld et al., 2012), helping firms to recover from adversity more quickly and efficiently and contributing to the building of stronger entrepreneurial resilience.

1.2.3 Does Fear of Entrepreneurial Failure Reinforce Metacognitive Effects on Entrepreneurial Resilience?

Entrepreneurial Fear of Failure (EFoF) is a psychological disorder of entrepreneurship, EFoF is a stabilizing tendency to avoid failure and is a psychological response triggered by failure-related cues in the environment (Gao, Yuan, Wang, Xiao, Lu, Jinjin, Chen, Bing, Kirsty Morrin, 2024).

Few studies have proposed a dual effect of EFoF on individuals, which is both inhibitory and stimulates entrepreneurial motivation and spirit (S. Stroe, C. Sir'en, D. Shepherd, J. Wincent, 2020). This explains why EFoF can stimulate some of an individual's coping mechanisms, such as self-compassion and confidence rebuilding, which can motivate college students to avoid failure and be proactive in striving for business success (Cacciotti, J.C. Hayton, J.R. Mitchell, A. Giazitzoglu, 2016). However, the positive effects of EFoF among college students have not been studied in depth, which provides a direction for future research (Yuan Gao, Xiao Wang, Jinjin Lu, Bing Chen, Kirsty Morrin, 2024).

College student entrepreneurship is also one of the groups of entrepreneurs, so we need to further explore the positive role of the fear of entrepreneurial failure, because entrepreneurs are afraid of entrepreneurship over the encounter of capital, ability and

other aspects of failure, so entrepreneurs need to think deeply about the process of entrepreneurship, so as to establish a coping mechanism, to help entrepreneurs out of the dilemma, i.e., get to obtain the entrepreneurial resilience of the increase.

1.2.4 What are the outcomes of entrepreneurial resilience?

Based on Shepherd et al.'s (2019) framework for the set of key outcomes in the organizational entrepreneurship process, we categorize entrepreneurial resilience outcomes into entrepreneurial effort initiation, entrepreneurial effort engagement, and entrepreneurial effort performance.

Researchers investigated whether entrepreneurs' resilience predicted their mental health and well-being. Newman et al. (2018) found a strong link between entrepreneurs' resilience and subjective well-being. Furthermore, Baron et al. (2016) found that entrepreneurial psychological capital fostered higher levels of subjective well-being by reducing the level of stress experienced by entrepreneurs. Similarly, Roche et al. (2014) found that PsyCap was positively associated with entrepreneurs' psychological well-being and negatively associated with cynicism and emotional exhaustion. Sergent et al. (2021) also found that core confidence predicted lower psychological distress during the opportunity identification stage.

1.2.5 What is Well-being? Does entrepreneurial resilience lead to Well-being?

Well-being is a broad concept that refers to people's evaluations of their lives and their "optimal psychological functioning and experience". Research attempting to explain the antecedents of entrepreneurial well-being is theoretically based on social psychology's resource-based theory of well-being (see Hobfoll, 2002 for a review). Resilience refers to an individual's ability to recover from failure, adversity, and uncertainty, and to adapt to the demands of a dynamic and stressful life (Bullough, Renko, and Myatt, 2014; Masten and Reed, 2002; Tugade and Fredrickson, 2004). Recent evidence also suggests that individuals with high resilience report greater SWB (Karreman and Vingerhoets, 2012; Noor and Alwi, 2013) and better mental health

(Peng et al., 2012; Pretsch, Flunger, and Schmitt, 2012). Empirical studies have shown that resilience is positively correlated with well-being Annemiek Karreman, Ad J.J.M. Vingerhoets, 2012).

1.2.6 Can social support moderate the relationship between entrepreneurial resilience and well-being?

Social support has been associated with well-being (Halbesleben, 2006), but social support does not always seem to be sufficient to predict changes in well-being. For example, social support predicted increased work engagement in some measurement waves and some subsamples, but not others (Biggs et al., 2014 Brough et al., 2013, Weigl et al., 2010). Several studies addressing negative well-being indices have found that a lack of social support at work is associated with an increase in negative well-being over time (Halbesleben and Buckley, 2006, ter Doest and de Jonge, 2006). Hobfoll (1988) argues that social support can both expand a person's pool of available resources and replace or enhance others that are lacking. This includes work-related social resources such as "support from coworkers" and "understanding from employees/bosses". In addition, there are non-work-related resources that may be related to work-related social support, including "help with tasks at home," "close relationships with spouse or partner," and "good relationships with children." Non-work related resources are associated with burnout because they can be lost or threatened when the demands of work are too high (Hobfoll, 2001). Hobfoll (1988) argues that social support is effective because it helps to reinforce the positive aspects of the self when times of stress cause people to neglect the positive aspects of their selves (Swann and Predmore 1985). Daniels et al. (2008, 2009) examined the relationship between coping efforts and subsequent affective states. Demonstrating that access to social support promotes an increase in positive states. Social support from coworkers predicted fluctuations in positive well-being. When employees receive more social support than usual from coworkers, they report higher levels of work engagement and

psychological well-being (Simbula 2010, Xanthopoulou et al. 2008). Experiencing a positive team climate (e.g., good team spirit) and more positive social interactions, employees report higher levels of work engagement and positive affect (Dimotakis et al. 2011, Kühnel et al. 2012, Xanthopoulou et al. 2012).

1.2.7 Can entrepreneurial self-efficacy moderate the relationship between entrepreneurial resilience and well-being?

Entrepreneurial self-efficacy refers to an individual's belief in his or her ability to perform a job or accomplish a specific set of tasks (Bandura, 1977). Entrepreneurial self-efficacy is a useful concept for explaining human behavior because research has shown that it plays an important role in determining an individual's choice, level of effort, and perseverance (Chen et al., 2004). Simply put, people with high entrepreneurial self-efficacy for a task are more likely to explore and persevere in completing that task than those with low entrepreneurial self-efficacy (Bandura, 1997). Self-efficacy, when viewed as a key prerequisite for new entrepreneurial intentions, is referred to as Entrepreneurial Self-Efficacy (ESE) (Boyd & Vozikis, 1994; Chen et al. 1998; Krueger and Brazeal, 1994).

Well-being may be influenced not only by work resources, but also by personal resources (i.e., personal factors that help a person master the environment and achieve goals; Xanthopoulou et al. 2009a). When looking at positive well-being indicators, most studies have found that factors such as entrepreneurial self-efficacy, optimism, organization-based self-esteem, and positive coping predicted an increase in work engagement over time (Simbula et al. 2011, Weigl et al. 2010; see Mauno et al. 2007). With respect to negative well-being outcomes, research findings are less consistent (González Morales et al., 2010).

Risk and adversity cause anxiety, which in turn leads to face-saving behaviors, physical responses to stress, a diminished ability to effectively manage negative emotions, and ultimately a reduced sense of personal efficacy (Lazarus & Folkman, 1984). On the

other hand, some people seek more positive responses to adversity. They find in the rubble opportunities for new business ideas and growth strategies that had not been considered before in better economic times. The extent to which a person believes in his or her ability to perform the tasks necessary to succeed as an entrepreneur - i.e., entrepreneurial self-efficacy (McGee, Peterson, Mueller, & Sequeira, 2009) - is critical to business development (Boyd & Vozikis, 1994; Zhao, Seibert, & Hills, 2005). Entrepreneurial self-efficacy can be a motivating force or a de-motivating force, depending on one's self-enhancing or self-defeating beliefs. Although challenging environments can negatively impact self-efficacy, those with highly developed self-efficacy skills are better able to cope. In addition, an entrepreneur's belief in his/her ability to effectively influence the entrepreneurial process and manage the impact of challenges and stressors can also influence his/her ability to adapt to these stressors. These abilities are critical to the development of entrepreneurial aspirations.

1.3 Research Problem

The key research questions to address the above problem statement are as follows.

- 1.3.1 Does entrepreneurial metacognition affect subjective well-being?
- 1.3.2 Does entrepreneurial metacognition act on subjective well-being through entrepreneurial resilience?
- 1.3.3 Does fear of entrepreneurial failure moderate the relationship between entrepreneurial metacognition and entrepreneurial resilience?
- 1.3.4 Does social support moderate the relationship between entrepreneurial resilience and subjective well-being?
- 1.3.5 Does entrepreneurial self-efficacy moderate the relationship between entrepreneurial resilience and subjective well-being?

1.4 Research Objective

1.4.1 To explore the relationship between entrepreneurial metacognition and subjective well-being.

1.4.2 To explore the mediating role of entrepreneurial resilience in the relationship between entrepreneurial metacognition and subjective well-being.

1.4.3 To explore whether fear of entrepreneurial failure moderates the relationship between entrepreneurial metacognition and entrepreneurial resilience.

1.4.4 To explore whether social support moderates the relationship between entrepreneurial resilience and subjective well-being.

To explore whether entrepreneurial self-efficacy moderates the relationship between entrepreneurial resilience and subjective well-being.

1.5 Importance of Research

Our findings provide an avenue for literature research. First, we add to the emerging body of research on individual-level resilience, particularly with respect to entrepreneurs, a specific analytical context that has received little attention to date.

Regarding entrepreneurial behavior, research has shown that entrepreneurs can develop resilience by reflecting after experiencing failures, and in this research we identify the reflection that entrepreneurs engage in after experiencing failures as entrepreneurial metacognition, which in turn is used to explore the impact of entrepreneurs' entrepreneurial metacognition on entrepreneurial resilience. There is no empirical research on the relationship between entrepreneurial metacognition and entrepreneurial resilience in the existing literature, and this research fills this gap. Considering also that entrepreneurial metacognition is about thinking about thinking, which requires the depth and breadth of knowledge as a support to better reflect on the entrepreneurial process, the moderating role of the relationship between entrepreneurial metacognition

and entrepreneurial resilience was investigated by introducing depth of knowledge and breadth of knowledge as moderating variables.

Existing studies have investigated whether entrepreneurs' resilience predicts their mental health and well-being.

Newman et al. (2018) found a strong association between entrepreneurial resilience and subjective well-being. This paper further explores the moderating role of the relationship between entrepreneurial resilience and well-being by adding the variables of social support and entrepreneurial self-efficacy, based on previous research and taking into account the entrepreneurial process's need for a large amount of social resource support and a strong sense of self-belief.

1.5.1 Theoretical Significance

1. This research examines the relationship between metacognition and subjective well-being from the perspective of entrepreneurship, expanding the application of metacognitive theory in the field of entrepreneurship.
2. This research analyzes the mediating role of metacognition in relation to subjective well-being from the perspective of entrepreneurial resilience to enrich social cognitive theory.
3. This research analyzes the moderating role of fear of entrepreneurial failure, entrepreneurial self-efficacy and social support, enriching the application of social cognitive theory in the field of entrepreneurship.

1.5.2 Practical Significance

1. Entrepreneurial resilience is at the heart of the entrepreneurial process as it affects the initiation, engagement and performance of entrepreneurial efforts. This research examines the entrepreneurial assessment of knowing oneself - the generation of entrepreneurial resilience - the outcome of entrepreneurial efforts (subjective well-

being), which provides an important theoretical reference for entrepreneurs in entrepreneurial practice.

2. This research deeply explores the antecedent variable of entrepreneurial resilience, namely entrepreneurial metacognition, which provides important theoretical support for entrepreneurs to overcome the difficulties arising from the entrepreneurial process.

3. This research deeply explores the outcome variable of entrepreneurial resilience, i.e., subjective well-being, which enriches the outcome of entrepreneurship from the perspective of non-financial performance and helps to stimulate entrepreneurial confidence.

1.6 Scope of the Research

The purpose of this research is to explore the relationship between entrepreneurial metacognition, entrepreneurial resilience, depth of knowledge, breadth of knowledge, social support, entrepreneurial self-efficacy and subjective well-being. Three theories are used in this paper to investigate their relationship including social cognitive theory, resource conservation theory, knowledge management theory and emotion theory. All the theories are constructed to reveal the antecedents and consequences of entrepreneurial resilience and subjective well-being, entrepreneurial metacognition is assumed to be the independent variable, subjective well-being is assumed to be the dependent variable, entrepreneurial resilience is assumed to be the mediator variable between the two, the fear of entrepreneurial failure is assumed to be the moderating variable of the relationship between entrepreneurial metacognition and entrepreneurial resilience, and social support and entrepreneurial self-efficacy are assumed to be the entrepreneurial resilience and subjective well-being moderating variable of the relationship between.

The research scope of this research is Chinese specialized, special and new innovative and entrepreneurial enterprises, and the key informants are entrepreneurs, business

operators or senior managers of enterprises. They need to continuously make decisions based on changes in the internal and external environments of their enterprises, reflect on the entrepreneurial process and entrepreneurial decisions and form entrepreneurial resilience, and ultimately improve the well-being index of themselves and their teams. This research adopts the empirical research method by combing through the past literature to determine the variable measurement scales that meet the scope of this paper, and form the electronic and paper-based research questionnaires. In order to ensure the reliability and validity of the research questionnaire, a pre-survey will be conducted in a small area, and the questionnaire will be revised according to the results of the pre-survey to ensure the reliability and validity of the research questionnaire.

In this research, Structural Equation Modeling (SEM) was employed as the main statistical technique to test the relationships between the constructs and determine the predictive power of the model, because it is a multivariate technique combining aspects of multiple regression and also factor factorization. and determine the predictive power of the model, because it is a multivariate technique combining aspects of multiple regression and also factor analysis to estimate a series of interrelated dependence relationships simultaneously (Hair, Anderson, Tatham, & Black, 1995). Furthermore, the analytical moderating effect was proceed using the hierarchical regression analysis, since hierarchical regression analysis is robust to violations of the assumptions, such as the normal distribution of the data (Hair, Black, Babin, & Anderson, 2014).

1.7 Research Structure

This research is organized into five chapters.

Chapter I introduces the research. It includes the background and theoretical foundations of the research, the problem statement, the research questions and objectives, the significance of the research , the scope of the research and the structure of the research .

Chapter II provides a review of the relevant literature, which is divided into seven sections. Therefore, an in-depth review of the literature is provided in terms of (1) theoretical foundations, (2) a conceptual review of metacognition, (3) a review of metacognition-related research (4) a conceptual review of entrepreneurial resilience (5) a review of entrepreneurial resilience-related research, (6) a conceptual review of well-being, and (7) a review of the measurement of subjective well-being. In addition, a review of conceptual frameworks based on relevant literature is presented based on the seven main constructs, the relationships between the key constructs, and the hypotheses. Finally, the chapter presents the conceptual model, hypotheses, and definitions.

Chapter III describes how this research was implemented to answer the following areas of research: (1) describes the research methodology, explains the sources of population and sample selection, and develops the questionnaire (2) discusses the measurement of all the constructs in the context of dependent, independent, moderator, and mediator variables (3) explains the methods that were useful in this research, including validity and reliability testing of the measurement questionnaire (4) describes the statistical techniques applied in this research, including structural equation modeling (SEM) and hierarchical regression analysis.

Chapter IV explains the structure between entrepreneurial metacognition, entrepreneurial resilience and well-being in terms of correlations and preliminary analyses, and then tests the proposed hypotheses. In addition, the analysis of the survey data is described and discussed, and then the results are presented based on the testing of the hypotheses using structural equation modeling and hierarchical regression analysis.

Finally, Chapter V summarizes the key findings of this research. It is divided into discussion, theoretical contributions, managerial contributions, future research agenda and conclusions.

Chapter II

Literature Review and Theoretical Framework

2.1 Theoretical Foundations

Theories related to the research of metacognition include metacognitive theory and entrepreneurial industry cognitive theory, which is the main theory used in this research. Metacognitive theory Metacognitive theory. Metacognition describes a process that involves self-regulation but advances regulation, and also describes the process by which regulation informs the development and generation of new perceptual structures (heuristics) as a function of environmental change (Flavell, 1987; Nelson, 1996). Research suggests that people who are more metacognitive in the way they approach a task or situation are (1) more likely to recognize that there are multiple decision-making frameworks that can be used to formulate a response; (2) more likely to engage in the process of consciously considering these multiple alternatives; and (3) more likely to be sensitive to and receptive to feedback from the environment and to incorporate that feedback into subsequent decision-making frameworks (Melot, 1998; Schraw & Dennison, 1994).

Metacognition describes a higher level of cognitive processes used to organize an individual's knowledge and awareness of self, task, situation, and environment in order to facilitate effective and adaptive cognitive functioning in the face of feedback from complex and dynamic environments (Brown, 1987; Flavell, 1979, 1987). Metacognitive thinking describes these activities as "self-awareness, thinking aloud, reflection, being strategic, planning, having a plan in mind, knowing what to know, and self-monitoring" (Guterman, 2002, p. 285). Metacognition is considered, at least in part, to be a conscious process (called metacognitive awareness [Flavell, 1979; Nelson, 1996]) in a social context (Allen & Armour-Thomas, 1993; Jost, Kruglanski, & Nelson, 1998), as opposed to cognition. Metacognition describes the process by which an individual

becomes aware of and reflects on the range of strategies (or creates new strategies) applicable to a given task and considers the utility of each strategy in dealing with the decision-making task at hand (Ford, Smith, Weissbein, Gully, & Salas, 1998; Staw & Boettger, 1990). Metacognition refers to an individual's control over his or her own learning and cognition, and is a function of the varying ability (among individuals) to self-reflect and consider alternative cognitive strategies in light of changing circumstances (Flavell, 1979; 1987; Schraw & Dennison, 1994).

2.2 Review of Relevant Literature and Research Hypotheses

2.2.1 Metacognition

1. Conceptual overview of metacognition

The process by which an individual understands and recognizes his or her own perceptions is called metacognition (Flavell, 1979). Metacognition refers to "thinking about thinking" and represents conscious reflection on one's own thinking (Schraw & Dennison, 1994). Metacognition has only recently received attention from entrepreneurship scholars. For example, Haynie et al. (2010) argued that the foundations of the entrepreneurial mindset are essentially metacognitive in nature, as metacognitive processes are contextual responses to novel and dynamic environments. Metacognition refers to an individual's understanding and awareness of his or her own cognition and is defined as the ability to reflect on, understand, and control cognitive processes related to specific goals or objectives. These benefits help to better utilize metacognition as entrepreneurs utilize cognitive feedback more effectively. Entrepreneurs must "rethink current strategic actions, organizational structures, communication systems, corporate culture, asset deployment, investment strategies, in short, all aspects of organizational operations and long-term health (Hitt, Keats, & DeMarie, 1998, p. 26)." It is therefore important for entrepreneurs to cultivate a mindset that enables adaptive decision making; a mindset that is both self-reflective and self-

regulating, allowing individuals to think beyond the biases in their existing perceptual mechanisms to appropriately interpret the causal relationships represented by environmental feedback (Hitt McGrath & MacMillan, 2000). We have summarized the concept of metacognition based on the literature, as detailed in Table 1.

Over time, the unknowns in entrepreneurship can become knowable through reflection (Grant, 2021). By reflecting and analyzing their ideas, nascent entrepreneurs may discover what is known. This is because metacognitive processes, such as a sense of difficulty, occur when entrepreneurs move from intuition to an analytical approach, and the results suggest that for entrepreneurs who are accustomed to extreme peaks of uncertainty, the perceived sense of difficulty is followed by a process of reflection, and this habit of introspection leads to the discovery and creation of new business opportunities. Reflection seems to be a powerful tool in moments when entrepreneurs may be experiencing too much difficulty. It reveals that the uncertainty of a business may be compensated by the extent to which the entrepreneur utilizes the thought process. However, coping with uncertainty is not self-evident to nascent entrepreneurs, which can lead to cognitive dissonance in the creation of startups.

Table 1 Summary of conceptual overview of metacognition

Author(s) (year)	Definitions
Flavell, 1979	The process by which individuals understand and recognize their own perceptions
Schraw & Dennison, 1994	"Thinking about thinking," which represents a person's conscious reflection on their thinking, is the ability to understand, control, and reflect on learning. Metacognition refers to an individual's control over his or her own learning and cognition, and is a function of different abilities (among individuals) to self-reflect and consider alternative cognitive strategies in light of changing circumstances.
Flavell, 1979; 1987; Schraw and Dennison, 1994	
Haynie et al., 2012; Hitt, 2000	Metacognition is the ability that allows individuals to be both self-reflective and self-regulating

Author(s) (year)	Definitions
Flavell(1979); Haynie et al. (2010); Mitchell et al.(2014);Shepherd (2018)	Understanding how founders control and reflect on their learning: their perceptions of themselves, their tasks, their situations and their environments. Understand perceptions of their knowledge and abilities and the ways or tools (de-biasing) they must use to assess themselves.

2. Metacognition-related concepts

Social capital, i.e., the ability of an individual to capitalize on the benefits derived from his or her social networks, structures and memberships, is an important prerequisite for the metacognitive processes of nascent entrepreneurs. Metacognitive processes generated using social capital have the ability to (a) stimulate learning from others, (b) stimulate recognition of feedback, and (c) engage entrepreneurs in local ecosystems. The central role of social capital in the empirical model is due to the fact that nascent entrepreneurs lack specialized knowledge in the entrepreneurial process, which can be compensated for and supplemented by expanding engagement with external stakeholders, incubators, and other experts. Metacognitive processes stimulate the expansion of expertise because thinking about the thought process triggers consideration of alternative options for creating different types of opportunities (Gustafsson, 2004). The results of this research emphasize the use of metacognitive processes for expertise, extending previous findings through a model that emphasizes the expansion of expertise as an additional advantage of thinking about thought processes stimulated by interactions with others.

The entrepreneurial mindset has been described as "the ability to perceive, act, and mobilize quickly, even under conditions of high uncertainty" (Ireland et al., 2003, p. 967), and metacognitive processes have additional benefits for nascent entrepreneurs because they stimulate the growth of the entrepreneurial mindset. It is the use of social

capital that adds consideration of the outsider's perspective to the firm. Metacognitive processes occur here because it stimulates nascent entrepreneurs to realize what expertise is missing in order to seek it elsewhere. Beginning with McGrath and MacMillan's (2000) conceptualization of the "entrepreneurial mindset," scholars have embraced the notion that dynamic decision-making processes are central to success in both managerial and entrepreneurial environments (Ireland et al., 2003). In developing the foundations of the entrepreneurial mindset, Ireland and his colleagues describe the cognitive tasks required for successful management as: understanding opportunities in the context of changing goals, continually questioning one's 'dominant logic' in the context of a changing environment, and re-examining 'seemingly simple questions about what we believe to be true about the market and the firm'. seemingly simple questions about what we believe to be true about markets and companies" (Ireland et al...).

3. Review of metacognitive research

Stephen M. Fleming and Hakwan C. Lau distinguished between the concepts of metacognitive bias (differences in subjective confidence despite constant performance on a basic task), metacognitive sensitivity (how well one distinguishes between one's own correct and incorrect judgments), and metacognitive efficiency (a subject's level of metacognition given a certain level of performance on a basic task or signal-processing ability). related concepts. Finally, we discuss how these three concepts raise interesting questions for future metacognitive research and provide some caveats for directly equating metacognitive sensitivity with consciousness. Instead, we advocate a more traditional approach that uses metacognitive bias as a reflection of the level of consciousness and the context of metacognitive sensitivity as a reference for other measures.

While the importance of prior knowledge has been the focus of much research, few researchers have purposefully investigated the other side of the "knowledge fringe

coin"-that is, what attributes or competencies of an individual can mitigate the seemingly negative consequences of a "knowledge deficit" and facilitate effective entrepreneurial decision making? knowledge deficit" and facilitate effective entrepreneurial decision-making? A priori scholarship implies an attribute that mitigates the challenges of effective entrepreneurial decision-making in the absence of a priori knowledge: cognitive adaptability: the ability to efficiently and appropriately evolve or adapt decision-making policies (i.e., learning) in the context of environments embedded in cognitive processing. Cognitive adaptability is important in entrepreneurial settings because contemporary business environments are characterized by rapid, substantial, and discontinuous change (Hitt, 2000). In order to achieve and sustain competitive advantage in this context, it is necessary to respond strategically and iteratively to changes in the organizational environment (Hitt; Ireland & Hitt, 1999). Metacognitive abilities vary between individuals. One source of this variability can be found by capturing what the literature describes as inter-individual differences in metacognitive resources, particularly metacognitive knowledge and metacognitive experiences (Flavell 1979, 1987). These metacognitive resources are the "building blocks" of one's metacognitive abilities - the more developed, powerful, and accessible these resources are, the greater the metacognitive ability. This is because metacognitive knowledge and metacognitive experience help to "validate the meaning of the content of thought" (Sanna & Schwarz, 2007, p. 173) when applied to a particular problem or situation, taking into account an individual's understanding of the person, the task, the strategy, the self (intuition, emotions, experience, memory), and one's own cognitive processes (Schraw, 2007). understanding of cognitive processes (Schraw & Dennison, 1994). Given the management literature's focus on knowledge and experience related to decision making and performance, we are particularly interested in the role of metacognitive knowledge and experience in informing metacognitive abilities. Building on the work of Flavell and others, J. Michael Haynie, Dean A. Shepherd, and

Holger Patzelt (2010) distinguished between two types of inputs to metacognitive abilities: metacognitive knowledge and metacognitive experience. Metacognitive knowledge refers to an individual's awareness and cognitive understanding of people, tasks, and strategies; and metacognitive experience, which represents affective past events based on cognitive activity and serves as a conduit through which memories, intuitions, and emotions can be utilized as a resource in the process of understanding a given task (Flavell, 1987).

That lack of prior knowledge can be (at least partially) overcome through the use of cognitive mechanisms that facilitate rapid and effective learning and adaptation? This proposition has not been addressed in the context of entrepreneurship because, as we have emphasized, few researchers have purposefully considered how to differentiate between entrepreneurs who have no entrepreneurial experience and those who have not been successful?

(1) Metacognitive Knowledge

Metacognitive knowledge refers to a person's conscious understanding of cognitive matters related to people, tasks, and strategies (Flavell, 1987; von Wright, 1992), and can be internally or externally directed. Metacognitive knowledge can be focused internally (self) and externally (environment). Internally focused metacognitive knowledge relates to an understanding of one's own preferences and values (e.g., an entrepreneur realizes that he or she prefers to deal with external constituents rather than employees); an understanding of one's strengths and weaknesses in certain tasks (e.g., dealing with "hard numbers" is better than dealing with interpersonal problems); and knowledge of personal strategies for coping with changing environments. Knowledge of personal strategies for coping with changing environments (e.g., self-reflection, rationality, information gathering). Externally-focused metacognitive knowledge relates to knowledge of how others (e.g., potential customers, competitors, and investors) perceive their firms and environments; knowledge of how and when to

perform certain tasks (e.g., preparation of financial statements, preparation of a marketing plan); or knowledge of different strategic ways of adapting to changing environments (i.e., incremental innovation, discontinuous change). Thus, we define metacognitive knowledge as the extent to which individuals rely on what is known about themselves, others, tasks, and strategies when engaging in the process of generating multiple decision-making frameworks that focus on interpreting, planning, and implementing goals to "manage" changing environments.

(2) Metacognitive Experience

Metacognitive experience is an affective experience based on cognitive activity and is a channel through which prior experiences, memories, intuitions, and emotions can be used as resources in the process of understanding the context of a given decision (Flavell, 1987). For example, a person has a metacognitive experience if he or she finds a particular task difficult to understand, and then utilizes past experiences with these difficult problems to provide a decision-making framework for dealing with this new but related task. As with past experiences, emotions and intuitions associated with past events can inform the development of decision frameworks focused on new and novel decision tasks. For example, emotions such as anger, fear, sadness, or joy that are cognitively related to past events may inform the process of generating future decision frames at the metacognitive level for new tasks, events, or situations related to the origin of the emotion. Intuition plays a similar role in the metacognitive development of decision frames. For example, entrepreneurs may make strategic decisions based on "hunches," reflecting a reliance on intuition (Miller & Ireland, 2005). Simply put, metacognitive experience enables individuals to better interpret their social world (Earley & Ang, 2003) and, together with metacognitive knowledge, informs the choice of an individual's decision-making framework. We define metacognitive experience as the extent to which an individual relies on trait experience, emotions, and intuition in

generating multiple decision-making frameworks that focus on interpreting, planning, and implementing goals in order to "manage" changing environments.

2.2.2 Entrepreneurial Resilience

1. Conceptual overview of entrepreneurial resilience

Resilience is a multidimensional and multidisciplinary concept that covers a wide range of domains, from physical material properties to psychological behaviors, giving rise to a variety of theoretical approaches and analytical perspectives (Gunderson, 2000; Holling, 1973; Ponomarov & Holcomb, 2009; Walker et al., 2002). At the individual level, resilience is defined as a psychological/behavioral attribute because it "builds on the resilience of organizational members" (Rioli & Savicki, 2003, p. 228) and requires "people who are able to respond to change quickly and effectively while with minimal stress" (Mallak, 1998, p. 8). Resilient entrepreneurs are likely to perform well again when business opportunities arise or difficulties are encountered (Hayward et al., 2010). As a result, entrepreneurs with resilience capabilities are able to act in the face of adversity and are more inclined to do so than non-resilient individuals, who are easily intimidated by challenging and dangerous circumstances (Gorgievski & Stephan, 2016). As a result, the term is sometimes used to describe the ability of company employees and managers to bounce back and even succeed in the face of problems and adversity (Luthans, Avey, Avolio, & Peterson, 2010; Shin, Taylor, & Seo, 2012), as actions and interactions between individuals can build organizational resilience (Cooper, Stokes, Liu, & Tarba, 2017; Morgeson and Hofmann, 1999). Entrepreneurial resilience is the ability of an entrepreneur to face the hazardous environment around him or her (Folkman & Moskowitz, 2000; Tedeschi and Calhoun, 2004), and Ducheck (2018, pp. 434-335) provides a specific definition and defines entrepreneurial resilience as, " The ability of an entrepreneur to anticipate potential threats, respond effectively to unforeseen events, and adapt to change in order to become stronger than before.

As expected, resilience at the individual level has been recognized as a factor of psychological capital (Luthans, Avey, Avolio, Norman, & Combs, 2006), but also as high levels of self-efficacy, optimism, and adherence to goals during the performance of daily tasks and activities. Despite this, research on entrepreneurship under unfavorable or even dangerous conditions has received little attention. If we consider the small business as the unit of analysis, entrepreneurs play a key role in decision makers and in spreading culture among employees through leadership and knowledge sharing (Bresciani, Giacosa, Culasso, & Broccardo, 2016; Cassia, De Massis, Meoli, & Minola, 2014; Suppiah and Singh Sandhu, 2011), thus contributing to individual and organizational resilience.

With the uncertainty of the environment, entrepreneurial firms need to strive to remain responsive to change and thus maintain the ability to continuously innovate beyond existing knowledge (Stuart and Podolny, 1996; Jiao et al., 2019). Along with this, entrepreneurial resilience (ER) has become an important topic (Conz and Magnani, 2020; Iborra et al., 2019). Research on entrepreneurial resilience is still in its infancy (Santoro et al. 2020; Duchek, 2018; Tusaie and Dyer, 2004). Entrepreneurial resilience is often viewed as an adaptability or resilience of entrepreneurs in the face of adversity, reflecting the high level of flexibility and adaptability entrepreneurs exhibit even after facing challenges or pressures Nikolaev B., Boudreaux C.J., Wood M. (2020).

Existing resilience research is mainly in the fields of psychology, ecology and engineering (Manfield and Newey, 2018). Unlike resilience, which is defined as a trait (Tedeschi and Calhoun, 2004), process (Coutu, 2002), indicator (Manfield and Newey, 2018), etc. in the aforementioned disciplines (Cutter et al., 2008), ER is mostly defined in terms of competence (Manfield and Newey, 2018; Bullough et al. 2014; Linnenluecke, 2015). Such competencies can be built and learned to some extent. Entrepreneurial resilience therefore refers to the entrepreneurial capabilities that help entrepreneurs and

firms to positively cope with adversity, recover from it and even grow better (Bullough et al., 2014; Linnenluecke, 2015; Battisti et al., 2019).

We summarize the concept of entrepreneurial resilience based on the literature, as detailed in Table 2.

Table 2 Summary of the conceptual synthesis of entrepreneurial resilience

Author(s) (year)	Definitions
Folkman & Moskowitz, 2000; Tedeschi & Calhoun, 2004	Entrepreneurial competence in the face of hazardous surroundings
Hayward M. L. A., Forster W. R., Sarasvathy S. D., et al. 2010	Entrepreneurial resilience is a kind of positive psychological capital or ability of entrepreneurs to cope with setbacks in entrepreneurial activities and to remain optimistic after entrepreneurial failure, which mainly includes four aspects of emotional resilience, cognitive resilience, social resilience and financial resilience. financial resilience).
Luthans, Avey, Avolio, & Peterson, 2010; Shin, Taylor, & Seo, 2012	The ability of company employees and managers to bounce back and even succeed in the face of problems and adversity.
Bullough et al. , 2014; Linnenluecke, 2015; Battisti et al. , 2019	Entrepreneurship that helps entrepreneurs and businesses to deal positively with adversity, recover from it and even grow better.
Duchek, 2018	The ability of entrepreneurs to anticipate potential threats, respond effectively to unforeseen events, and adapt to change to become stronger than ever.
Nikolaev B., Boudreaux C.J.,Wood M. 2020	An adaptability or resilience in the face of adversity, reflecting a high level of flexibility and adaptability in the face of challenges or pressures....

3. Review of research on entrepreneurial resilience

Entrepreneurial resilience is a dynamic process of adaptation and the ability of entrepreneurs to recover in the face of difficulties and challenges. The entrepreneurial process is often accompanied by difficulties and challenges, and entrepreneurs must adapt their goals and strategies in time to cope with the ever-present contingencies; thus, entrepreneurial resilience becomes increasingly important, especially in the context of

crisis events. Studies have explored the positive role of entrepreneurial resilience in the context of war zones (Bullough et al., 2014) and economic crises (Bullough and Renko, 2013). Entrepreneurial resilience is increasingly important in the current context of the raging New Crown Pneumonia epidemic, which has hit many entrepreneurial firms. In previous entrepreneurship research, it has been suggested that entrepreneurial resilience promotes learning from entrepreneurial failure, enabling entrepreneurs to recover from the negative emotions of failure and undertake entrepreneurial activities again (Cope, 2011; Hao, Xiling et al., 2018).

Some scholars have focused on the correlation between resilience and different types of entrepreneurship (Sun et al., 2011), as well as the impact of resilience on an individual's entrepreneurial intentions (Bullough and Renko, 2013). More recently, scholars have gradually begun to focus on the impact of resilience on entrepreneurial outcomes, arguing that it can be used to explain why some entrepreneurs are able to cope with the threats and challenges posed by the business environment better than others (Fatoki, 2018).

(1) antecedent variables of entrepreneurial resilience

Among the antecedent variables of entrepreneurial resilience, most studies have focused on the dimensions of individual factors that are important for entrepreneurial resilience (including personality, learning experiences, personal experiences, commitment, attitudes, and behaviors) and contextual factors (including external and internal environments, resources, social networks, and support).

A specific internal factor often described in entrepreneurship research is entrepreneurial self-efficacy, with studies suggesting that entrepreneurs' confidence in their own entrepreneurial ability enhances entrepreneurial resilience (Bullough and Renko, 2013).

In addition, passion has also been identified as one of the important influences on entrepreneurial resilience (Duchek, 2018). There are also studies that describe entrepreneurial resilience as a collection of behavioral traits, identifying flexibility,

motivation, perseverance, and optimism as factors that enhance resilience (Ayala and Manzano, 2014). In addition to the aforementioned individual cognitive and affective factors, individual human capital related factors have also been found to be associated with the cultivation of resilience. Entrepreneurial experience is one of the important human capital of entrepreneurs, and entrepreneurial experience can provide useful guidance for future entrepreneurial behavior and enhance individual resilience, especially the positive experience of hazardous situations, which can reduce the entrepreneur's fear of adversity and enhance individual cognitive resilience (Dewald and Bowen, 2010). In addition to individual factors, external situational factors are also important influences on entrepreneurial resilience. While some studies have focused on the structural and relational characteristics of entrepreneurs' social networks and their impact on entrepreneurship (Greve and Salaff, 2003), existing research has gradually begun to explore the impact of the support provided by social networks on entrepreneurship.

A keyword search of the Web of Science, EBSCO and ABI/INFORM databases identified 86 empirical research articles on entrepreneurial resilience, with the majority examining the resilience of entrepreneurs in the context of for-profit start-ups (Silja Hartmann, 2022) , although a few have also examined this concept in the context of social entrepreneurship (e.g. , Nyame-Asiamah et al. 2020), in relation to social entrepreneurial intentions (e.g., Choi et al. 2021; Sana et al. 2021) or in the context of particular forms of new ventures, such as eco-entrepreneurship (e.g., Kirkwood, Dwyer, and Walton 2017). Our synthesis also shows that entrepreneurial resilience has been studied in many different countries (and on all continents except Antarctica). In addition, some studies have investigated entrepreneurial resilience in multiple countries or among people with different cultural backgrounds (e.g., Liu, 2020; Renko et al., 2021), while others have investigated entrepreneurs operating across cultural boundaries (e.g., refugees and immigrants; Alexandre et al. 2019; Huq & Venugopal, 2021; Shepherd et

al. 2020). This suggests that research on entrepreneurial resilience has broad applicability across a range of cultural contexts. Nonetheless, entrepreneurs' psychological resilience may be influenced by their cultural context (Andri et al., 2019), as entrepreneurs from different cultural backgrounds may perceive and react differently to risk and adversity (Liu, 2020).

The entrepreneurial journey is inherently full of uncertainty and challenges. Entrepreneurial metacognitive knowledge encompasses an entrepreneur's knowledge of the cognitive processes involved in the entrepreneurial journey, his or her own cognitive abilities, and the various cognitive strategies employed. As suggested by Smith (Smith, 2018), it consists of three key aspects. First, task-related metacognitive knowledge in entrepreneurship refers to an entrepreneur's understanding of tasks such as opportunity identification, resource integration, and business model construction. Second, self-related metacognitive knowledge involves entrepreneurs' perceptions of their own entrepreneurial competencies, including innovation, risk tolerance, and leadership. Third, strategy-related metacognitive knowledge refers to entrepreneurs' understanding of the planning, monitoring, and evaluation strategies utilized in the entrepreneurial process.

Entrepreneurs with rich entrepreneurial metacognitive knowledge are able to identify entrepreneurial opportunities and risks more accurately and use effective cognitive strategies to make decisions (Jones, 2019). Entrepreneurs with a clear knowledge of their entrepreneurial capabilities tend to be more confident in their ability to overcome challenges when faced with difficulties (Brown, 2020). Entrepreneurs with good knowledge of entrepreneurial metacognition are good at monitoring and evaluating the entrepreneurial process, enabling them to identify problems and learn from them in a timely manner (Lee, 2022). Entrepreneurs' mastery of cognitive strategies helps to integrate and utilize resources more effectively (Zhang, 2021). When resources are limited or facing resource constraints, they can use metacognitive strategies to

rationally allocate resources, improve the efficiency of resource utilization, and enhance the stability and risk-resistance of entrepreneurial activities, thus improving entrepreneurial resilience.

Existing research provides some empirical support for the positive impact of entrepreneurial metacognitive knowledge on entrepreneurial resilience. For example, empirical studies have shown that entrepreneurs with higher levels of metacognition recover their entrepreneurial programs faster in the face of external shocks (Zhao, 2023), so we propose the following hypothesis:

H1a: Entrepreneurial metacognitive knowledge positively affects entrepreneurial resilience;

Entrepreneurial metacognitive experience is the entrepreneur's subjective experience and reflective summary of his/her cognitive process, cognitive strategy use and cognitive results in the process of entrepreneurial activities. It covers multiple levels: first, cognitive task execution experience, i.e., entrepreneurs' perception and experience of how well their cognitive abilities match the task requirements in specific entrepreneurial tasks such as opportunity identification, resource acquisition, and market development (Schraw, 2019). For example, entrepreneurs' experiential perceptions of their insight and judgment in identifying potential entrepreneurial opportunities. Second, cognitive strategy application experience, including the experience and assessment of the effectiveness of the cognitive strategies used, such as analyzing, decision-making, and monitoring, in scenarios such as developing entrepreneurial plans, solving problems, and coping with risks (Flavell, 2020). For example, entrepreneurs' experience of the applicability of a brainstorming strategy after solving an idea generation problem through the practical application of the strategy. Third, cognitive self-regulation experience involves the experience gained by entrepreneurs in confronting cognitive dilemmas and adjusting their cognitive goals and

approaches, reflecting the ability to actively regulate their own cognitive processes (Zimmerman, 2021).

Rich entrepreneurial metacognitive experience enables entrepreneurs to have a sharper insight into market changes and opportunities and accurately assess their own cognitive limitations, so that they can choose more appropriate cognitive strategies in the decision-making process (Mitchell, 2018). At the same time, entrepreneurial metacognitive experience helps entrepreneurs to remain rational and calm in the face of setbacks, use the cognitive regulation experience accumulated in the past to quickly adjust their mindset and way of thinking (Luthar, 2020), and promotes entrepreneurs to reflect deeply on the entrepreneurial process, learn lessons from it, and realize the effective accumulation and transformation of knowledge (Argyris, 2021). Entrepreneurs with good entrepreneurial metacognitive experience are able to clearly recognize their cognitive strengths and weaknesses in resource acquisition and allocation (Barney, 2019).

Existing research has to some extent validated the positive impact of entrepreneurial metacognitive experience on entrepreneurial resilience. For example, empirical studies have found that the more metacognitive experience entrepreneurs have, the more resilient their firms are in the face of market turbulence (Miller, 2023). We therefore propose the following hypothesis:

H2a: Entrepreneurial metacognitive experience positively affects entrepreneurial resilience.

Few studies have proposed a dual effect of entrepreneurial fear of failure (EFoF) on individuals, which is both inhibitory and stimulates entrepreneurial motivation and spirit (S. Stroe, C. Sir'en, D. Shepherd, J. Wincent, 2020). This explains why EFoF can stimulate some of an individual's coping mechanisms, such as self-compassion and confidence rebuilding, which can motivate college students to avoid failure and be proactive in striving for business success. Cacciotti, J.C. Hayton, J.R. Mitchell, A.

Giazitzoglu,2016). However, the positive effects of EFoF among college students have not been studied in depth, which provides a direction for future research (Yuan Gao, Xiao Wang, Jinjin Lv, Bing Chen, Kirsty Morrin,2024)

The relationship between entrepreneurial metacognition and entrepreneurial resilience is explored in this research using fear of entrepreneurial failure as a moderating variable and the following hypotheses are proposed:

H3a: Fear of entrepreneurial failure moderates the relationship between entrepreneurial metacognitive knowledge and entrepreneurial resilience;

H3b: Fear of entrepreneurial failure moderates the relationship between entrepreneurial metacognitive experience and entrepreneurial resilience;

(2) research of outcome variables of entrepreneurial resilience

Based on Shepherd et al.'s (2019) framework for the set of key outcomes in the organizational entrepreneurship process, we categorize entrepreneurial resilience outcomes into entrepreneurial effort initiation, entrepreneurial effort engagement, and entrepreneurial effort performance.

Researchers have investigated whether the mental resilience of entrepreneurs affects their entrepreneurial beginnings. Silja Hartmann (2021) reviewed research examining the link between resilience and variables that capture entrepreneurs' entrepreneurial endeavors, defined as "the first step in identifying (through recognition or co-creation) and evaluating a potential opportunity prior to its full exploitation (cognitive, affective, and/or behavioral)" (Shepherd et al., 2019, p. 163). First, researchers explored whether entrepreneurial resilience predicted entrepreneurial cognition. For example, researchers have found a strong link between entrepreneurial resilience and entrepreneurial alertness (Obschonka et al., 2018). Second, some studies have focused on the fact that entrepreneurs' resilience predicts their entrepreneurial intentions.

Scholars have also examined whether entrepreneurs' resilience predicts their engagement in entrepreneurial endeavors. Silja Hartmann (2021) reviewed a research

that examined the link between resilience and variables that capture entrepreneurs' engagement in entrepreneurial endeavors, which were defined as "cognitive, affective, behavioral, and/or organizational activities" (Shepherd et al., 2019, p. 167). First, researchers have explored whether entrepreneurs' resilience predicts their ability to access resources to facilitate their entrepreneurial endeavors. For example, Anglin et al. (2018) found that entrepreneurs' use of positive mental language during crowdfunding campaigns, including language that captured their resilience, was positively associated with crowdfunding performance. Second, researchers investigated whether entrepreneurs' resilience predicted their mental health and well-being. Newman et al. (2018) found a strong association between entrepreneurs' resilience and subjective well-being. Furthermore, Baron et al. (2016) found that entrepreneurial psychological capital fostered higher levels of subjective well-being by reducing the level of stress experienced by entrepreneurs. Similarly, Roche et al. (2014) found that PsyCap was positively associated with entrepreneurs' psychological well-being and negatively associated with cynicism and emotional exhaustion. Sergent et al. (2021) also found that core confidence predicted lower levels of psychological distress during the opportunity identification stage. Third, researchers have explored whether entrepreneurs' resilience predicts their engagement in learning and innovation commitment. For example, Corner et al. (2017) find that resilient entrepreneurs experience more high-level learning and are better able to learn from failure than less resilient entrepreneurs. In addition, Hallak et al. (2018) found that entrepreneurial resilience predicted higher levels of innovation by fostering creative self-efficacy. Finally, research has also considered whether entrepreneurial resilience predicts how entrepreneurs engage in entrepreneurial endeavors. For example, Peterson et al. (2009) found that positive psychological traits of startup leaders, including resilience, predicted their use of transformational leadership.

Silja Hartmann (2021) reviewed research examining the link between resilience and variables reflecting the performance of entrepreneurs' entrepreneurial endeavors, defined as "achievement (or lack thereof) in taking advantage of one or more potential opportunities" (Shepherd et al., 2019, 174). First, researchers have explored whether entrepreneurial resilience predicts individual-level achievement. For example, several studies have found that entrepreneurial resilience promotes career success and the need to persist in entrepreneurial employment in the face of challenges (e.g., Chen and Liu, 2019; Croteau et al. 2021; Loh and Daheshisari, 2013; Nyame Asiamah et al. 2020; Salisu et al. 2020). In addition, studies have established a positive relationship between entrepreneurial resilience and job and/or career satisfaction (Owens et al., 2013; Santoro, Ferraris et al., 2020). Second, studies have explored the relationship between entrepreneurial resilience and firm-level characteristics. For example, Brown and Kasztelnik (2020) investigated the relationship between entrepreneurial resilience and financial innovation climate based on the CD-RISC (Connor & Davidson, 2003) measure, but found that only one of the five dimensions of the CD-RISC was related to a firm's financial innovation climate. Lafuente et al. (2019) find that firms with experienced and resilient entrepreneurs exhibit higher international orientation in terms of export propensity compared to novice entrepreneurs. Third, the relationship between entrepreneurial resilience and firm performance outcomes is of increasing interest. Studies have found a positive correlation between entrepreneurial resilience (or entrepreneurial psychological capital) and the financial performance of the firm (e.g., Digan et al., 2019; Islam et al., 2020; Peterson et al., 2009) as well as the entrepreneur's subjective perception of entrepreneurial success (Fisher et al., 2018; Santoro, Bertoldi et al., 2017).

2.2.3 Subjective Well-Being

1. Review of research on the concept of Subjective well-being

Well-being, or its academic corollary, subjective well-being (SWB), has been described as the ultimate goal of human existence (Diener, Sapyta & Suh, 1998; Diener et al. 1985; Erdogan et al. 2012). It is a broad concept that refers to people's evaluations of their lives and their "optimal psychological functioning and experience" (Ryan & Deci 2001, p. 142). The research of Well-being follows two different perspectives that are based on different philosophical traditions and worldviews. The first perspective adopts a hedonic view of well-being as pleasure or Well-being. This perspective is known as subjective well-being and includes positive affective experiences, low levels of negative affective experiences, and high levels of life satisfaction as core components (Diener 2000). The second perspective, which adopts the O'Demonick view, views Well-being as (a) personal growth and self-actualization, (b) authenticity and personal expressiveness, and (c) the pursuit of meaning in life (Ryff 1995, Waterman 1993). Thus, while hedonic well-being has been conceptualized primarily as a subjective experience of feeling good, everyday well-being refers primarily to living a good and meaningful life. Many studies have also examined Well-being from a psychological perspective, defined as psychological well-being, and life course and socio-economic related well-being have been examined to emphasize the point that opportunities to achieve Well-being are not equally distributed. Biological correlates of psychological well-being (cardiovascular, neuroendocrine, immune) are also briefly noted as they suggest that living a life rich in purpose and meaning, sustained growth, and quality connections with others may be beneficial to health (CAROL D. RYFF and BURTON H. SINGER, 2008). Subjective well-being is a person's assessment of his or her life. This assessment can be based on cognitive states, such as satisfaction with one's marriage, job, and life, or on sustained affect (i.e., the presence of positive emotions and moods and the absence of unpleasant affects) (Ed Diener , Jeffrey J. Sapyta & Eunkook Suh, 2009). Indicators of subjective well-being typically include a comprehensive assessment of all aspects of a person's life. While emotions or behaviors within a domain may be assessed, the focus

is usually on a comprehensive judgment of a person's life (Ed Diener 1984). A conceptual overview of well-being has been summarized in Table 3 and is detailed below:

Table 3 Summary of definitions of Subjective well-being

author	define
Bradburn, 1969; Warr & Wall, 1975; Campbell, 1976	which is to do with people's feelings about their everyday-life activities.
Jahoda, 1958; Herzberg, 1966; Berg, 1975	Such feelings may range from negative mental states (dissatisfaction, unWell-being, worry, etc.) to a more negative mental state. through to a more positive outlook which extends beyond the mere absence of dissatisfaction (as health is something beyond the mere absence of illness) into a state which has sometimes been identified as positive mental health
Peter Warr, 1978	Psychological well-being is thus a wide-ranging concept which embraces affective aspects of everyday experience.
Ryff, 1989	Psychological well-being (PWB), explicitly concerned with the development and self-realization of the individual
Diener, Sapyta and Suh, 1998; Diener et al. 1985; Erdogan et al. People, 2012	Well-being, or its academic corollary, subjective well-being (SWB), is described as the ultimate goal of human existence.
Diener 2000	Known as subjective well-being, it includes positive affective experiences, low levels of negative affective experiences, and high levels of life satisfaction as core components.
Ryan & Deci 2001	People's evaluations of their lives and their "optimal psychological functioning and experience."
CAROL D. RYFF and BURTON H. SINGER, 2008	The concept of eudaimonic well-being is proposed, eudaimonic well-being truly is the to right way to live, presumably it will benefit their health, both in terms of health behaviors (e.g., those experiencing self-realization may take better care of themselves, but also with regard to neurobiological health). in terms of health behaviors (e.g., those experiencing self-realization may take better care of themselves), but also with regard to neurobiological processes that underlie their phenomenological experiences of growth and development. processes that underlie

author	define
Ed Diener , Jeffrey J. Sapyta & Eunkook Suh, 2009	their phenomenological experiences of growth and development. Subjective well-being is a person's assessment of his or her life. This assessment can be based on cognitive states, such as satisfaction with one's marriage, job, and life, or it can be based on sustained affect (i.e., the presence of positive emotions and moods and the absence of unpleasant influences).
Pawar, 2016	Employee well-being can take various forms such as physical well-being, psychological well-being, and social well-being, as it is a subjective experience and evaluation. experience and evaluation.
Melissa A. Milkie, 2020	Well-being broadly to include subjective well-being (e.g., life satisfaction, life meaning, loneliness), emotional health (e.g., anger, guilt), mental health (e.g., depression, anxiety), and physical heath. mental health (e.g., depression, anxiety), and physical heath.
Man Zhu ,Sitan Li2, Hongyan Gao ,Lijuan Zuo,2024	Employee Well-being was measured from two dimensions of Life Well-being (LWB) and Work Well-being (WWB).

Regarding the concept of well-being, this research used subjective well-being as the object of research because existing researchers have investigated whether entrepreneurs' resilience predicts their mental health and well-being. Newman et al. (2018) found a strong association between entrepreneurs' resilience and subjective well-being.

2. A review of studies on the relevance of Subjective well-being

Sabine Sonnentag (2015) reviews and integrates longitudinal, empirical sampling, and correlational research on changes and variability in well-being. The roles of job stressors, job resources, interpersonal environment, personal resources, work-family interface, and performance are discussed. Issues of affective symmetry, homogeneity of levels within people and persons, and interactions between well-being and other variables are also explored. Interpersonal factors play an important role in fluctuations

in well-being . Overall, a large number of studies have identified positive features of social interactions, such as social support, team climate, interactional positivity, and positive leadership behaviors, as important predictors of positive well-being indices. Research has focused specifically on social support (and other positive features of the social environment), social conflict, and leadership processes. Social support from coworkers predicts fluctuations in the Positive Well-Being Index. When employees receive more social support than usual from coworkers, they report higher levels of work engagement and psychological well-being (Simbula 2010, Xanthopoulou et al. 2008). Similarly, when experiencing a positive team climate (e.g., good team spirit) and more positive social interactions, employees report higher levels of work engagement and positive affect (Dimotakis et al. 2011, Kühnel et al. 2012, Xanthopoulou et al. 2012). Findings on the role of social support on indicators of negative well-being are less consistent (Dimotakis et al. 2011, Ilies et al. 2011, Totterdell et al. 2006), suggesting that although social support, positive team climate and positive social interactions contribute to positive states, they have a weaker role in mitigating negative states. Entrepreneurs often face setbacks and have to cope with various forms of adversity, including financial difficulties, out of team members, and/or social marginalization (e.g., Heet al., 2018; Pidduck & Clark, 2021). Entrepreneurs therefore have a greater need for social support, experience a positive team climate (e.g., good team spirit) and more positive social interactions, higher levels of employee work engagement and positive affect (Dimotakis et al. 2011, Kühnel et al. 2012, Xanthopoulou et al. 2012), and entrepreneurial well-being indexes increase, so this paper introduces social support as a moderating variable in the research of the relationship between entrepreneurial resilience and subjective well-being.

H4a: Social support moderates the relationship between entrepreneurial resilience and subjective well-being.

Well-being varies across countries and cultures (Diener et al. 2003, Fischer & Boer 2011). These differences are due not only to recognizable differences in objective life conditions (Diener 2012), but also to differences in the values associated with positive emotions (Bastian et al. 2014). Little is known about cultural differences in the dynamics of well-being, i.e., whether the same factors influence the variability and variability of well-being across cultures, and whether well-being predicts performance in a uniform way. The studies in this article were conducted in different cultures, with the majority of the samples coming from North America, Europe, and Australia. The results of studies conducted in Asia (e.g., Foo et al. 2009, Song et al. 2008, Yang & Diefendorff 2009) or Latin America (Madrid et al. 2014) do not differ substantially from those obtained in Western cultures. However, the number of studies is too small to draw reliable conclusions; moreover, systematic direct comparisons between cultures are mostly non-existent. Therefore, future research should address possible cross-cultural differences in the dynamics of well-being. Based on the observation that the fit between cultural values and personal characteristics plays an important role in individual well-being (Diener et al., 2003), one could hypothesize that factors that are valued in a culture have a greater impact on changes and fluctuations in well-being than those that are less valued .

Researchers have increasingly focused on the positive aspects of work-related well-being, such as job engagement and prosperity. Work engagement refers to the physical, cognitive, and emotional processes by which employees "introduce their personal selves in the process of role-playing at work" (Kahn 1990, p. 694). Several concepts have been discussed, most of which focus on different aspects (May et al. 2004, Maslach & Leiter 2008, Rich et al. 2010, Schaufeli & Bakker 2004), including effort and intensity (physical aspects), attention and absorption (cognitive aspects), and enthusiasm and energy (emotional aspects). For example, in their widely used conceptualization, Schaufeli & Bakker (2004) suggest that work engagement includes

three core components: vitality, dedication, and absorption. Spreitzer et al. (2005) introduce flourishing at work as an alternative conceptualization of positive well-being, which incorporates hedonic and self-values. Prosperity includes a shared sense of vitality and learning. Vitality refers to feeling energized, while learning refers to the experience of acquiring and applying new knowledge and skills. Work engagement and flourishing as a concept of positive well-being appear to be closely related to motivational and behavioral processes. Conceptually, however, they emphasize the experience of energy, dedication, absorption, and growth rather than actual behavior.

Yuriy Bilan , Halyna Mishchuk , Natalia Samoliuk and Halyna Yurchyk (2020) examined the methodological tools for improving the analysis of income distribution from a macro perspective in order to identify the links between different structural indicators of income inequality and the most basic features of social and economic well-being.

Well-being may be influenced not only by work resources, but also by personal resources (i.e., personal factors that help a person master the environment and achieve goals; Xanthopoulou et al. 2009a). When looking at positive indicators of well-being, most studies have found that factors such as entrepreneurial self-efficacy, optimism, organization-based self-esteem, and positive coping predicted an increase in work engagement over time (Simbula et al. 2011, Weigl et al. 2010; see Mauno et al. 2007).

Self-efficacy, when viewed as a key prerequisite for new entrepreneurial intentions, is referred to as Entrepreneurial Self-Efficacy (ESE) (Boyd & Vozikis, 1994; Chen et al. 1998; Krueger and Brazeal, 1994). Entrepreneurial self-efficacy refers to an individual's belief in his or her ability to perform a job or accomplish a specific set of tasks (Bandura, 1977). Entrepreneurial self-efficacy is a useful concept for explaining human behavior because research has shown that it plays an important role in determining an individual's choices, level of effort, and perseverance (Chen et al., 2004). Simply put, people with high entrepreneurial self-efficacy for a task are more likely to explore and persevere in

accomplishing that task than those with low entrepreneurial self-efficacy (Bandura, 1997). Strong beliefs in one's abilities give entrepreneurs the confidence to overcome adversity caused by economic downturns and business stagnation and to seek out new business opportunities, resulting in a positive affective experience.

This research introduces entrepreneurial self-efficacy as a moderating variable in the research of the relationship between entrepreneurial resilience and subjective well-being and proposes the following hypotheses:

H4b: Entrepreneurial self-efficacy moderates the relationship between entrepreneurial resilience and subjective well-being.

Entrepreneurial metacognition positively affects entrepreneurial resilience, and entrepreneurial resilience positively affects subjective well-being. Therefore, we used entrepreneurial tenacity as a mediating variable and formulated the following hypotheses:

H1b: Entrepreneurial metacognitive knowledge positively affects subjective well-being;

H2b: Entrepreneurial metacognitive experiences positively influence subjective well-being;

H5a: Entrepreneurial metacognitive knowledge positively influences subjective well-being through entrepreneurial resilience;

H5b: Entrepreneurial metacognitive experiences positively influence subjective well-being through entrepreneurial resilience;

3. A review of research on the measurement of well-being

On the measurement of well-being. It has undergone a process of development from single-item measures, to multi-item scales (including the Multi-Item Scale for the Elderly (MISE) and the General Multi-Item Scale (GMS)). Since subjective well-being is of critical importance to those interested in measuring quality of life (Campbell, 1976), it is not surprising that some of the most commonly used measures are single-

item survey questions (see Table 4). Despite the obvious advantages of brevity, single-item scales have been criticized for a number of reasons (e.g., McKennell, 1974). Because of the reliance on a single item, it is not possible to average out differences caused by the specific wording of that item. Because it is not possible to obtain estimates of internal consistency therefore usually the only reliability estimate for these scales is temporal reliability, in which it is difficult to separate true change from measurement error. Over time, single-item scales tend to be less reliable than multiple-item scales, despite the relatively high temporal reliability of single-item measures (Stock, Okun, Stock, Haring, & Witter, 1982).

Multi-item scales, several multi-item scales designed specifically for older respondents have emerged (in Table 4). Beyond that are the typical multi-item scales in general. Multi-item scales designed for generalization are also listed in Table 4. Frank D. Mann, Colin G. DeYoung, Valerie Tiberius, & Robert F. Krueger (2020) used three different measures of mental health. Well-being Well-being is defined by psychologists based on life satisfaction and the balance of positive and negative emotions, and it is usually measured by self-reports of Well-being, positive and negative emotions, and overall satisfaction with life. Well-being, as envisioned by psychologists (Ryan & Deci, 2001; Keyes, Shmotkin, Ryff, 2002), stems from a variety of intellectual traditions (reviewed by Ryff & Singer, 2008; Ryff 2014), beginning with Aristotelian ethics, and later incorporating concepts that include individualization (Jung 1933), psychological concepts including personal development (Erikson, 1959), and maturity (Allport, 1961). The most widely used measure of well-being is Ryff's (1995) multidimensional scale, which includes self-report measures of self-acceptance, environmental control, positive relationships, life goals, personal growth, and autonomy. Finally, social well-being focuses on the quality of one's relationships, connections to the community, and understanding of the world. Although related, social well-being is distinct from hedonics and Well-being (factor analysis suggests that Ryff's (1995) Positive

Relationships Scale should be considered to assess this construct rather than Well-being (Gallagher, Lopez & Preacher, 2009; Joshanloo, 2017)

Table 4 Summary of measures of subjective well-being

Research	Scales	Description
Cantril, 1965	Self-Anchoring Ladder (single item)	A nine-rung ladder is anchored at the top with "best life for you" and at the bottom With worst possible life for you "Respondent marks one rung
Gurin, Veroff, & Feld (1960)	GurinScale (single item)	To a question about how things are these days, respondents chooses among "very happy," "pretty happy," and "not too happy. "
Andrews & Withey (1976)	Delighted-TerribleScale (single item)	To a question about "how happy you feel about how happy you are," the respondent selects one of seven responses ranging from "delighted" to "terrible."
Lawton, 1975	PGCMS (multi-item, geriatric)	17-item scale measures lonely dissatisfaction, agitation, and attitude toward one's aging
Morris & Sherwood (1975)	PGC-M (multi-item, geriatric)	Revision of the original PGCMS.
Neugarten, Havighurst, & Tobin (1961).	LSI (multi-item, geriatric)	Factors measured include zest vs. apathy, resolution, fortitude, and congruence between desired and achieved goals.
Wood, Wylie, & Sheafor (1969).	LSI-Z (multi-item, geriatric)	13-item revision of the LSI.
Kozma & Stones (1980)	MUNSH (multi-item, geriatric)	24-item scale measures positive and negative affect and experiences.
Tellegen (1979)	Differential Personality Questionnaire-Well-Being sub scale (multi-item, general use)	21-item subscale of an omnibus personality inventory measures a combination of positive affect, positive attitudes, and optimism
Campbell, Converse, & Rodgers (1976).	Index of General Affect (multi-item, general use)	Subjects rate their lives on eight semantic differential scales such as enjoyable miserable.
Underwood and Moore (1980)	Mood Survey (multi-item) general use)	Two subscales measure hedonic level and hedonic variability or reactivity (16 items).
Dupuy (1978)	General Well-Being Schedule (multi-item, general use)	Seven specific aspects of well-being are assessed: life satisfaction, health concerns, depressed mood, person-environment fitness

Research	Scales	Description
Fordyce (1978)	Self-Description Inventory (multi-item, general use)	coping, energy level, and stress. Several subscales are included: achieved personal Well-being, happy personality. Well-being values and attitudes, and happy life-style. Two forms are available that correlate .95
Bradburn (1969)	Affect Balance Scale	10 items designed to measure both positive and negative affect.
Fordyoe (1977b)	Well-being Measures	Asks respondents to estimate the percent of time they are happy, unhappy, and neutral. Also includes an 11-choice scale on which respondents rate overall Well-being.
Kammann &Fett (1983)	Affectometer	Measures the frequency of positive and negative affect
Larsen (1983)	Affect Intensity Measure	Measures the typical strength or intensity of a person's affective responses.
Diener, Emmons, Larsen, & Griffn (1983).	Satisfaction with Life Scale	Measures general life satisfaction and is suitable for all ages, from adolescents to adults.
Diener (1985)	Life Satisfaction	5 measurement items about life satisfaction
Ryff (1995)	Positive Relationship Scale	The key dimensions of this synthetic model of well-being are self-acceptance, positive relationships with other people, autonomy, environmental mastery, purpose in life, and personal growth

2.3 Conceptual Model and Assumptions

Based on the literature review and the previously proposed hypotheses, this research focuses mainly on the investigated effects between entrepreneurial metacognition and subjective well-being, and all the theories are constructed to reveal the antecedents and consequences of entrepreneurial resilience and subjective well-being, with entrepreneurial metacognition assumed to be the independent variable, subjective well-being assumed to be the dependent variable, entrepreneurial resilience assumed to be the mediator variable between them, and depth of knowledge and breadth of knowledge hypothesized as moderating variables of the relationship between entrepreneurial

metacognition and entrepreneurial resilience, and social support and entrepreneurial self-efficacy were hypothesized as moderating variables of the relationship between entrepreneurial resilience and subjective well-being. The theoretical model of the research is presented in Figure 1 below:

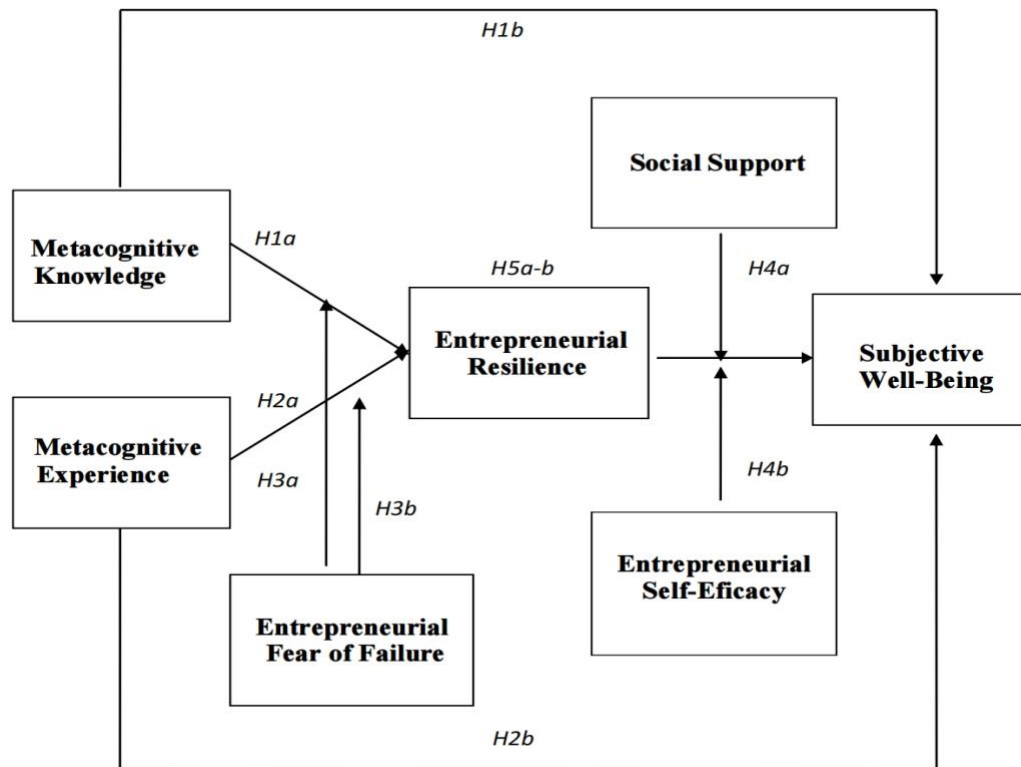


Figure 1 Conceptual model

A summary of all the hypothesized relationships is given in Table 5 below for details:

Table 5 Summary of research assumptions

Hypotheses	The Statement
H1a	Metacognitive Knowledge affects Entrepreneurial Resilience
H1b	Metacognitive Knowledge affects Subjective Well-Being
H2a	Metacognitive Experience affects Entrepreneurial Resilience
H2b	Metacognitive Experience affects Subjective Well-Being
H3a	Entrepreneurial Fear of Failure moderates the relationship between Metacognitive Knowledge and Entrepreneurial Resilience
H3b	Entrepreneurial Fear of Failure moderates the relationship between Metacognitive Experience and Entrepreneurial Resilience
H4a	Social Support moderates the relationship between Entrepreneurial Resilience and Subjective Well-Being
H4b	Entrepreneurial self-efficacy moderates the relationship between Entrepreneurial Resilience and Subjective Well-Being

Hypotheses	The Statement
H5a	Entrepreneurial Resilience mediates the relationship between Metacognitive Knowledge and Subjective Well-Being
H5b	Entrepreneurial Resilience mediates the relationship between Metacognitive Experience and Subjective Well-Being



Chapter III

Research Methodology

This chapter describes the research design used to answer the research questions defined in Chapter 1. Therefore, this chapter consists of five parts: the research sample, research variables, data collection, statistical techniques, and preliminary research. The first part of this chapter describes the population source and sample selection; the second part describes the definitions of the dependent, independent, mediating, and control variables for this research ; and the third part describes the measurement question items for all constructs in the context of the dependent, independent, moderating, and mediating variables based on the development of the questionnaire. The fourth section describes the statistical techniques used in this research , including structural equation modeling and PLS-SEM, and in this does not separate the reasons for using PLS-SEM in this research . The last section explains the methods that were useful in this research , including validity and reliability tests to measure the questionnaire, common method bias test, and exclusion of items for some of the variables based on the preliminary results of the PLS-SEM run.

3.1 Research Sample

The scope of this research is entrepreneurial firms in the Guangdong, Hong Kong and Macao Greater Bay Area of China, and the key informants are the entrepreneurs of the firms.

The Guangdong-Hong Kong-Macao Greater Bay Area (GBA) is one of the most internationally competitive and innovative regions in China, and its unique "one country, two systems" background, industrial synergies and cross-border resource integration provide a natural laboratory for entrepreneurship research. Through policy synergy and cross-border resource flows, the Greater Bay Area has formed a unique entrepreneurial ecosystem, which provides a rich diversity of samples for research ing entrepreneurial

behaviors (Li, H., & Zhang, Y., 2020). The industrial integration of science and technology, finance, and manufacturing industries exposes entrepreneurs to complex environmental challenges, making it suitable for exploring the dynamic roles of metacognition and resilience (Li, H., & Zhang, Y. (2020)). amp; Zhang, Y. (2020).

The Guangdong-Hong Kong-Macao Greater Bay Area (GBA) is a fusion of Chinese and Western cultures, and its "failure-tolerant" entrepreneurial culture provides a unique perspective for the research of entrepreneurial Fear of Failure and metacognition (Huang, L., Pearce, J. L., & He, V. F. (2019). Studies have found that entrepreneurs in the Greater Bay Area are significantly more tolerant of failure than those in other regions, and this cultural context weakens the negative impact of fear of failure on well-being, highlighting the need for regional selection (Huang, L., Pearce, J. L., & He, V. F. 2019). Uy, M. A., et al (2023) noted that collectivist cultures in which entrepreneurs' metacognition is more dependent on social network support, the Greater Bay Area's East-meets-West culture provides an ideal scenario to test this theory. Through policy innovations (e.g., tax incentives, cross-border financial pilots) and infrastructure connectivity, the Greater Bay Area provides a unique institutional environment for entrepreneurs, which is suitable for exploring the moderating role of external resources on the relationship between metacognition and well-being. Taking Shenzhen as an example to reveal how government policies indirectly enhance entrepreneurial well-being by reducing entrepreneurial risks supports the selection of the Greater Bay Area as a typical case for policy intervention research (Zhang, Y., & Li, H, 2021).

Jiao, H., Yang, J., & Zhou, J. (2019) noted that high-tech firms in the Greater Bay Area rely on policy-driven innovation resources, and such environments can amplify the facilitating effect of metacognition on resilience. The diverse backgrounds of the Greater Bay Area entrepreneurial population, which encompasses Hong Kong and Macao youths, returnees, and local entrepreneurs, offer the possibility of controlling for variables such as culture and education, which enhances the external validity of the

research .Davidsson, P., & Honig, B. (2003) emphasize the importance of a diverse sample in testing the generalizability of entrepreneurship theories, and the internationalized backgrounds of entrepreneurs in the Greater Bay Area meet this Shepherd, D. A., et al. (2020) suggest that the uniqueness of the Greater Bay Area's "one country, two systems, three tariff zones" is ideal for testing resilience theory in a cross-cultural context.

Existing studies on metacognition and well-being mostly focus on Western individualistic cultures, while the Greater Bay Area provides a new scenario for exploring the theoretical boundaries in collectivistic cultures. Metacognition theories need to be contextualized in cultural situations, and the Greater Bay Area studies can verify their generalizability (Haynie, J. M., et al., 2010).Gao, Y., et al (2023) called for testing the moderating effects of the fear of failure in non-Western settings, and the Greater Bay Area's East-meets-West character responds to this need.

The choice of entrepreneurs in the Guangdong, Hong Kong and Macao Greater Bay Area as the research object is based on its economic uniqueness, cultural inclusiveness and policy innovativeness, and is also in line with the academic advocacy of top international journals for the contextualization and cross-cultural validation of theories. By focusing on this region, this research can not only deepen the boundary conditions of metacognitive theory, but also provide empirical evidence based on the Chinese context for global entrepreneurship policy design.

3.2 Research Variables

This research utilized multi-item measurement scales from prior literature. The dependent variable (subjective well-being), independent variables (entrepreneurial metacognition i.e. entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience), mediator (entrepreneurial resilience), moderator (entrepreneurs' fear of failure, social support, and entrepreneurial self-efficacy), and

control variables (gender, the type of industry in which the business is located, income, level of stress, education level, and level of work-life balance) are explained below.

1. Dependent Variable: Subjective Well-Being

Subjective Well-Being (SWB) is a person's assessment of his or her life. This assessment can be based on cognitive states, such as one's satisfaction with marriage, work, and life, or on sustained affect (i.e., the presence of positive emotions and moods without unpleasant influences) (Ed Diener, Jeffrey J. Sapyta & Eunkook Suh, 2009). We assessed entrepreneurs' SWB using the five-item Satisfaction with Life Scale (SWLS) developed by Diener et al. (1985); entrepreneurs' responses to the program ranged from 1 (Strongly Disagree) to 7 (Strongly Agree). The SWLS underwent an extensive validation process, and is widely regarded as the most robust instrument currently available for measuring life satisfaction (Erdogan et al. 2012).

2. Dependent Variable: Entrepreneurial Metacognition

Metacognition: An individual's understanding of his or her own perceptions and cognitive processes is called metacognition (Flavell, 1979). Metacognition refers to "thinking about thinking" and represents a person's conscious reflection on their own thinking (Schraw & Dennison, 1994).

Entrepreneurial Metacognition refers to how entrepreneurs control and reflect on their learning: what do they know about themselves, their tasks, their situation, their environment, what do they know about their knowledge and abilities, and what methods or tools (de-biasing) must they use to assess themselves? (Flavell, 1979; Haynie, 2010; Mitchell, 2014; Shepherd, 2018).

In this paper we categorize metacognition into metacognitive knowledge and metacognitive experience, and focus on these two aspects of metacognition measurement.

3. Mediating variable: Entrepreneurial Resilience

Entrepreneurial Resilience is the entrepreneurial ability of entrepreneurs and firms to respond positively to adversity, recover from it, and even grow better (Bullough et al, 2014; linnenluecke, 2015; Battisti et al, 2019).

Entrepreneurial Resilience is the ability of an entrepreneur to face the hazardous environment around him or her (Folkman & Moskowitz, 2000; Tedeschi and Calhoun, 2004) This variable was developed using Sinclair and Wallston's (2004) Brief Resilient Coping Scale, a four-item, seven-point Likert-type scale ranging from "doesn't describe me at all" to "describes me very well". This variable was developed using the Sinclair and Wallston (2004) Brief Resilient Coping Scale, which is a four-item, seven-point Likert-type scale ranging from "does not describe me at all" to "describes me very well".

4. Mediating variable: Fear of Entrepreneurial Failure

Entrepreneurial Fear of Failure (EFoF), refers to the likelihood of failing at tasks and responsibilities surrounding specific entrepreneurial activities (e.g., financing, pitching, networking, recruiting, etc.) in the context of ambiguous and uncertain entrepreneurial behavior (Gabriella Cacciottia, James C. Haytona, J. Robert Mitchellb, David G. Allen, 2020).

Fear of Entrepreneurial Failure consists of seven dimensions, which include F = ability to finance entrepreneurship; PI = potential of the idea; threat to the dignity of society; OE = opportunity cost; PA = personal ability; FS = financial security; and vef = ability to execute the business excluded from the six-factor solution.

5. Mediating variable: Social Support

Social Support refers to the social resources that are perceived to be available to people or actually provided to them by lay people in formal support groups and informal helping relationships (Benjamin H. Gottlieb, Anne E. Bergen, 2010).

Support from family and friend was used as a measure for social support following from Molino et al. (2018). Sample items include 'my family members have always thought I should choose an entrepreneurial career, and people who are important to me (i .e.

family and friends) are very likely to provide me with the necessary support to follow an entrepreneurial career. The items were measured on a 5-point scale ranging from 1 'strongly disagree' to 5 'strongly agree'.

6. Mediating variable: Entrepreneurial Self-Efficacy

Simply put, ESE is a measure of a person's conceptualization of his or her ability to successfully carry out entrepreneurial activities. Entrepreneurial Self-Efficacy (ESE) was measured using four items developed by Zhao, Seibert, and Hills (2005). Respondents were asked to assess their level of confidence in successfully "identifying new business opportunities, creating new products or services, thinking creatively, and commercializing an idea." The items were rated on a 5-point scale from 1 "not very confident" to 5 "very confident".

7. Control variables

Gender differences may affect entrepreneurs' cognitive styles, risk preferences, and ability to cope with stress. For example, female entrepreneurs may be more risk-averse, while male entrepreneurs may be more risk-taking (Brush et al., 2009). The entrepreneurial environment, competitive intensity, and technological requirements of different industries may influence entrepreneurs' cognitive styles and coping strategies. For example, entrepreneurs in high-tech industries may face higher levels of uncertainty and technological challenges, which may require stronger metacognition and resilience (Shane, 2003).

Stress levels may directly affect entrepreneurs' cognitive functioning and emotion regulation. High stress levels may lead to cognitive biases and emotional dysregulation, which may reduce metacognition and subjective well-being (Lazarus & Folkman, 1984).

Income level may affect entrepreneurs' access to resources and psychological security, which in turn affects their cognitive style and subjective well-being. High-income

entrepreneurs may be more able to cope with failure, while low-income entrepreneurs may face greater financial stress (Baron et al., 2016).

The family-work balance situation may affect entrepreneurs' psychological state and time allocation, which in turn affects their cognitive abilities and subjective well-being. Inadequate family support may lead to higher levels of stress, which may affect entrepreneurs' well-being (Jennings & McDougald, 2007).

Level of education may affect entrepreneurs' cognitive ability, information processing ability, and resource acquisition ability. Highly educated entrepreneurs typically have stronger analytical skills and broader social networks, which may affect their metacognition and subjective well-being (Davidsson & Honig, 2003).

It is easy to see that Income, Education, etc. affects the subjective well-being of entrepreneurs, so to ensure the validity of the research, six control variables were set: Gender, Type of Industry, Stress Level, Income, Work-Life balance and Education.

The industry types are designed according to the classification of the official website of China Bureau of Statistics, and there are 20 types in total, including agriculture, forestry, animal husbandry, fishery, mining, manufacturing, wholesale and retail.

Stress levels were designed according to a 5-point Likert scale, categorized as "very high", "high", "average", "low", "low", and "very low". " and "very small".

Income is measured in Chinese Yuan, and annual income is the statistical caliber, including "less than 100,000", "100,000-300,000", "300,000-500,000", "500,000-700,000", and "700,000+", "500,000-700,000" and "700,000+".

The level of work-life balance is also designed on a 5-point Likert scale from "very bad" to "very good".

There are five levels of education, including middle school and below, high school, college, master's degree, and doctorate.

3.3 Data Collection

This research utilizes an empirical research methodology by combing through the past literature and identifying variable measurement scales that fit the scope of this paper to form an electronic and paper-based research questionnaire.

In this research , data were collected through paper and electronic questionnaires in which all the constructs in the conceptual model were developed scales from an intensive literature review. According to the model, the constructs containing basic personal information, independent variable (entrepreneurial metacognition), mediating variable (entrepreneurial resilience), dependent variable (well-being), and moderating variables (entrepreneurial fear of failure, social support, and entrepreneurial self-efficacy) were constructed, because the entrepreneurial resilience, well-being, social support, and entrepreneurial self-efficacy measurement question types are from well-established scales and have been used many times in national academics, while the entrepreneurial metacognition, and entrepreneurs' fear of failure are relatively new variables, and subsequently the measurement items have been widely used in relevant empirical studies abroad, confirming the feasibility of the questionnaire. In this research , the questionnaire was administered to a sample of entrepreneurs from the Guangdong, Hong Kong and Macao Greater Bay Area in China, and the formulation of the variables of entrepreneurial metacognition and entrepreneurs' fear of failure was revised to take into account the cultural differences between the East and the West.

Firstly, the author translated the original questionnaire into Chinese according to the research context of the measurement items of the two variables respectively, and then sent it to 10 more senior entrepreneurs in China to fill in the questionnaire, and in the process of filling in the questionnaire, he collected each other's questions as well as the actual situation of entrepreneurship in China, and then he made appropriate modifications to the measurement items of the two variables, and finally formed a localized research questionnaire. This questionnaire consists of two parts, the first part

is the basic personal information, which is a total of six questions, and the second part is the main body of the questionnaire, which includes seven variables of entrepreneurial metacognition (entrepreneurial metacognitive knowledge, entrepreneurial metacognitive experience), entrepreneurial resilience, entrepreneurial fear of failure, social support, entrepreneurial self-efficacy, and well-being, which is a total of 56 questions. Table 7 shows all the original items (i.e., entrepreneurial metacognition, entrepreneurial resilience, and subjective well-being) for the two main constructs in this research, with each item rated on a Likert-type scale ranging from 1 ("very much does not fit") to 5 ("very much fits").

Table 6 The original items in this research

Item Code	<i>Entrepreneurial Metacognition</i>
Item Code	<i>Entrepreneurial Metacognitive Knowledge (EMK)</i>
EMK1	I think of several ways to solve the problem, and then choose the best way
EMK2	Before I begin, I will challenge my assumptions about the task
EMK3	I think about how others will react to my behavior
EMK4	I find myself automatically adopting strategies that have worked well in the past.
EMK5	I perform best when I already understand the task.
EMK6	I create my own examples to make the information more meaningful.
EMK7	I try to use strategies that have worked well in the past
EMK8	Before I begin, I will ask myself some questions about this task
EMK9	I try to translate the new information into my own words
EMK10	I try to break the problem down into smaller parts.
EMK11	I am concerned about the meaning and significance of the new information.
Item Code	<i>Entrepreneurial Metacognitive Experience (EME)</i>

EME1	Before starting a task, I will think about what I really need to accomplish.
EME2	I use different strategies according to the situation.
EME3	I arrange my time best to achieve my goal.
EME4	I am good at organizing information.
EME5	I know what kind of information is most important when facing problems.
EME6	I consciously focused on important information.
EME7	My "intuition" tells me when a particular strategy I use is most effective.
EME8	I rely on intuition to make strategies.
Item Code	<i>Entrepreneurial Resilience (ER)</i>
ER1	I actively look for ways to replace the losses I accountant in life
ER2	I believe that I can grow in positive ways by dealing with difficult situations.
ER3	I look for creative ways to alter difficult situations.
ER4	Regardless of what happens to me, I believe I can control my reaction to it.
Item Code	<i>Subjective Well-Being (SWB)</i>
SWB1	In most ways, my life is close to my ideal.
SWB2	The conditions of my life are excellent.
SWB3	I am satisfied with my life.
SWB4	So far I have gotten the important things I want in life.
SWB5	If I could live my life over, I would change almost nothing.
Item Code	<i>Entrepreneurial Fear of Failure (EFoF)</i>
Stem	Over the past few months, I have been afraid...
Dimensions	Validated items
F1	...of not getting enough funding to move the company forward
F2	...of not being able to finance the business
F3	...of not being able to get the required funding for the business
PI1	...that no one will be interested in the product/service

PI2	...that this is not a valuable business idea
PI3	...that there is no need for our product/service out there
TSE1	...of other people's expectations of me
TSE2	...of disappointing the people who are important to me
TSE3	...of losing the trust of people who are important to me
OC1	...that running the business is taking my time away from other activities
OC2	...of missing important events of my life because of my business
OC3	...of not being able to spend enough time with my family and friends
PA1	...of not being able to manage people effectively
PA2	...of not being able to manage the business effectively
PA3	...of not being able to fulfil all the roles that this job requires
FS1	...of running out of money
FS2	...of losing all my savings
FS3	...of losing all I have invested in the business/business activities
Stem	Over the past few months, I have been afraid of the organization's ability to...
VE1	...meet client expectations
VE2	...overcome technical challenges
VE3	...deliver upon promises
Item Code	<i>Social Support (SS)</i>
SS1	My family members have always thought I should choose an entrepreneurial career.
SS2	My friends think that I should choose an entrepreneurial career.
SS3	People who are important for me think that I should choose an entrepreneurial career.
Item Code	<i>Entrepreneurial Self-Efficacy (ESE)</i>
ESE1	Have confidence in identifying new business opportunities.
ESE2	Have confidence to create new products or services.
ESE3	Have the confidence to think creatively.
ESE4	Have the confidence to put an entrepreneurial idea into business law.

A total of 10 questionnaires were sent out in the preliminary stage of this research , and then the questionnaires were sent out again after localized contextual modification according to the experts' opinions, and 303 questionnaires were recovered, and 11 invalid questionnaires were excluded, resulting in 292 valid questionnaires, and the validity rate of the questionnaires was as high as 96.37%.

3.4 Statistical Techniques

The data collected from the questionnaire were analyzed in order to answer the research questions and to prove the hypotheses presented. In this research , Structural Equation Modeling (SEM) and Partial Least Squares Regression (PLS) were conducted to test the relationship between the structures and to determine the predictive power of the model.

1. Structural Equation Modeling (SEM)

In this research, the primary analytical method is structural equation modeling (SEM), which is used to test relationships between structures and determine the predictive power of the model. SEM is used for hypothesis testing because it is a multivariate technique that combines aspects of multiple regression and factor analysis while estimating a set of interrelated dependencies (Hair, Anderson, Tatham, & Black, 1995). Following Byrne (2001) and Arbuckle & Wothke (1999), the present research utilized a two-step process in which the development and evaluation of measurement models was separated from the full SEM, which consisted of both measurement and structural relationships. In addition, the combination of measurement modeling with structural modeling allows for a comprehensive validated assessment of structural validity (Bentler, 1978).

2. PLS-SEM (Partial Least Squares Structural Equation Modeling)

SEM is a second-generation statistical technique that allows researchers to simultaneously consider the relationship between multiple independent and dependent

variable structures, with measurement models that allow for the estimation of unmeasured latent variables, SEM answers a series of interrelated research questions through a single, systematic, and comprehensive analysis. There are two main branches of SEM, CB-SEM, and VB-SEM.

CB-SEM was first proposed by Joreskog (Joreskog K G, 1970; Joreskog K G.1978) in the 1970s. It established a factor structure and analyzed the covariance structure and canonical correlation of variables, and developed a software system LISREL (Joreskog K G, van ThilloM, 1972) . VB-SEM uses PLS technology internally, so it is called PLS-SEM. PLS is an iterative model proposed by Herman Woldin 1966, a path model proposed by Herman Wold in 1975, and further developed by Lohmöller in 1989. PLS-SEM establishes a structure based on the linear combination of variables and uses the PLS principle for interpretation and predictive analysis. CB-SEM and PLS-SEM have similarities and differences, and each has its own advantages. A brief introduction is shown in Table 7:

Table 7 Comparison between CB-SEM and PLS-SEM

SEM Type	CB-SEM	PLS-SEM
Common Software	LISREL, EQS, AMOS, R language	SmartPLS, PLS-Graph, VisualPLS, R language
Composition	Measurement model and structural model. The measurement model consists of measurement variables and latent variables; the structural model consists of latent variables and latent variables	Outer model and inner model. The outer model 1 consists of measurement independent variables and exogenous latent variables; the outer model 2 consists of measurement dependent variables and endogenous latent variables; the inner model consists of exogenous latent variables and endogenous latent variables
Statistical Techniques	Establish factor structure based on measurement variables, analyze with covariance, and explain the relationships between variables	Establish principal component structure based on measurement variables, analyze with regression principles and principal component analysis, and explain and predict the relationships between variables

SEM Type	CB-SEM	PLS-SEM
Analysis Purpose	Emphasizes the maximum matching of covariance matrices; mainly used for testing the applicability of theories, suitable for verifying theoretical models	Emphasizes the interpretability of causal relationships; mainly used for establishing theoretical models, can also be used for verifying the causal relationships under discussion, suitable for prediction
Statistical Distribution Requirements	Normal distribution mode, solved with maximum likelihood estimation; when variables are non-normally distributed, the estimation will be biased	Solved with regression analysis estimation, can obtain better estimation solutions with small samples; when variables are non-normally distributed, can obtain better estimation solutions. Estimation solution requires a certain number of samples
Result Implications Model Complexity	Best parameter precision Within 100 indicators	Best prediction precision Can reach 100 constructs, 1000 indicators
Multicollinearity	Multicollinearity has a smaller impact	When measurement variables are highly correlated, multicollinearity has a significant impact in formative mode Recommended 30 to 100, preferably more than 10 times the number of measurement variables
Sample Size	Recommended 200 to 800	Recommended 30 to 100, preferably more than 10 times the number of measurement variables
Optimization Type	Global iteration	Local iteration
Measurement Model	Mainly reflective mode, with formative mode as a supplement	Both reflective mode and formative mode are acceptable
Model Assessment	Composite reliability, average variance extracted, explanatory power R square	Path coefficients, explanatory power R square, Gof index
Main Content of Report Results	Mean, standard deviation, reliability, validity; explanatory power R square, correlation coefficient; reasons for deleting explanatory variables	Mean, standard deviation, correlation coefficient, composite reliability, average variance, validity, explanatory power R square, T value
References	Gefen D, Straub D (2000); David Gefen EERA (2011); Shiau WALM (2012); Shiau WL, Chau P (2016); Liang C, Shiau W (2018); Urbach N, Ahlemann F (2010); Henseler J, Ringle CM, Sarstedt M. (2015)。	

PLS incorporates PCA, CCA, and MLR analyses. PLS uses an iterative approach to regression modeling, with each iteration consisting of two steps: first, the process of

extracting the components, which combines the advantages of Principal Component Analysis and Typical Correlation Analysis in extracting the components; and second, the multiple linear regression of the extracted components with the original independent variables, which is expressed as original independent variables.

The main advantages of PLS modeling can be summarized as follows: (i) it can handle regression modeling of multiple dependent variables on multiple independent variables; (ii) it can be used for regression modeling when the number of sample points is obviously too small relative to the number of variables (number of feature dimensions); (iii) it can be used for regression modeling when there is a high degree of redundancy among independent variables; (iv) the regression coefficients of each independent variable are easy to interpret, and the regression coefficients are linear combinations of the original independent variables.

3. Analysis of the reasons for choosing PLS-SEM

(1) The need to deal with complex relationships

In this research, "entrepreneurial metacognition" is used as the independent variable, "entrepreneurial resilience" as the mediator variable, "subjective well-being" as the dependent variable, and "entrepreneurial self-efficacy" as the moderating variables. support, and entrepreneurial self-efficacy as moderating variables to analyze the moderating effects, and PLS-SEM is able to deal with the complex relationship between multiple dependent and independent variables at the same time, as both the mediating and moderating effects need to be analyzed.

(2) Handling small sample data

A total of 303 samples were collected in this research, 11 were invalid samples, and the valid samples were 292, which is a relatively small sample size, and PLS-SEM is particularly suitable for small-sample data to provide more stable parameter estimation and model fit assessment.

(3) Need to deal with multicollinearity

In this research, the research questionnaire was designed through a mature scale, and there may be high correlation between independent variables, i.e., the problem of multiple covariance. PLS-SEM reduces the data dimensions by extracting the principal components, and at the same time, it considers the relationship between the independent variables and the dependent variable, which is able to effectively deal with the problem of multiple covariance, and improves the model's stability and prediction ability.

Past Research References

Shaofeng Wang et al. (2024) analyzed the effects of entrepreneurial experience and social support on entrepreneurial success through entrepreneurial resilience through a PLS-SEM model, and the results suggest that entrepreneurial resilience plays an important mediating role between these factors. The PLS-SEM analytical approach has been heavily adopted and used in research on entrepreneurship-related topics (Lechuga Sancho et al. 2020; Su et al. 2021; Lu et al. 2021) are also well suited for the development of new theoretical models.

In summary, the PLS-SEM model has significant advantages in dealing with complex relationships, small sample data, multicollinearity, mediation effect assessment, model fit assessment, latent variable treatment and prediction orientation. Therefore, it is reasonable and effective to choose PLS-SEM model to analyze the relationship between entrepreneurial metacognition, entrepreneurial resilience and subjective well-being.

3.5 Preliminary Research

3.5.1 Reliability Analysis

This research focuses on quantitative methods to identify empirical relationships between the three core constructs of entrepreneurial metacognition, entrepreneurial resilience and subjective well-being. In order to capture the reliability of the constructs with multiple indicators, internal consistency was assessed using the Cronbach's alpha value, which was made to exceed 0.70 based on a rule of thumb (Nunnally, 1978). Table

8 shows the reliability of all the variables and it is easy to see that the Cronbach's alpha values for the main variables involved in this research exceeded 0.7.

Table 8 Reliability coefficients of the main constructs

	Cronbach's alpha
Entrepreneurial Fear of Failure (21 items)	0.974
Entrepreneurial Metacognitive Experience (8 items)	0.774
Entrepreneurial Metacognitive Knowledge (11 items)	0.848
Entrepreneurial Resilience (4 items)	0.754
Entrepreneurial Self-Efficacy (4 items)	0.891
Social Support (3 items)	0.830
Subjective Well-Being (5 items)	0.842

3.5.2 Common Method Bias Test (Common Method Bias, CMB)

The importance of the Common Method Bias (CMB) test cannot be underestimated in many research fields such as social sciences and management. In empirical research, there is a potential risk of common method bias due to the fact that data are often collected from the same source, by the same method, or within the same time period. In the absence of a CMB test, there is a high risk that this bias will seriously interfere with the true relationship between the variables, resulting in systematic errors in the results of the research, which will adversely affect the accuracy, reliability, and validity of the findings (Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P., 2003).

From the perspective of scientific research, the implementation of the CMB test can help researchers identify and effectively control such biases, ensure that the results of

the research can truly present the intrinsic relationship between the variables, thus significantly improving the scientific rigor of the research .

Podsakoff et al. (2003) stated that the CMB test should cover all variables that may be affected by common method bias, including control variables (if they are measured in the same questionnaire as the research variables). In this research the control variables were measured in the same questionnaire as the research variables, so this test will include the control variables (e.g., gender, education level, etc.) as follows:

In SPSS, select Analyze → Dimensionality Reduction → Factor Analysis, force 1 factor, and check the total variance explained. If total variance explained < 50%, the CMB risk is low ; if total variance explained \geq 50%, further analysis is required (e.g., checking the distribution of factor loadings). The results are shown in the table9:

Table 9 Common method bias test results

Total variance explained						
ingredient	Initial eigenvalue			Extract the sum of squares and load		
	add up the total	% of variance	Cumulative %	add up the total	%of variance	Cumulative %
1	4.115	31.654	31.654	4.115	31.654	31.654
2	1.600	12.308	43.962			
3	1.265	9.732	53.694			
4	1.054	8.108	61.802			
5	.925	7.119	68.921			
6	.857	6.593	75.513			
7	.738	5.673	81.186			
8	.608	4.678	85.864			
9	.500	3.849	89.713			
10	.427	3.284	92.998			

11	.403	3.097	96.094
12	.298	2.290	98.384
13	.210	1.616	100.000

Extraction method: principal component analysis.

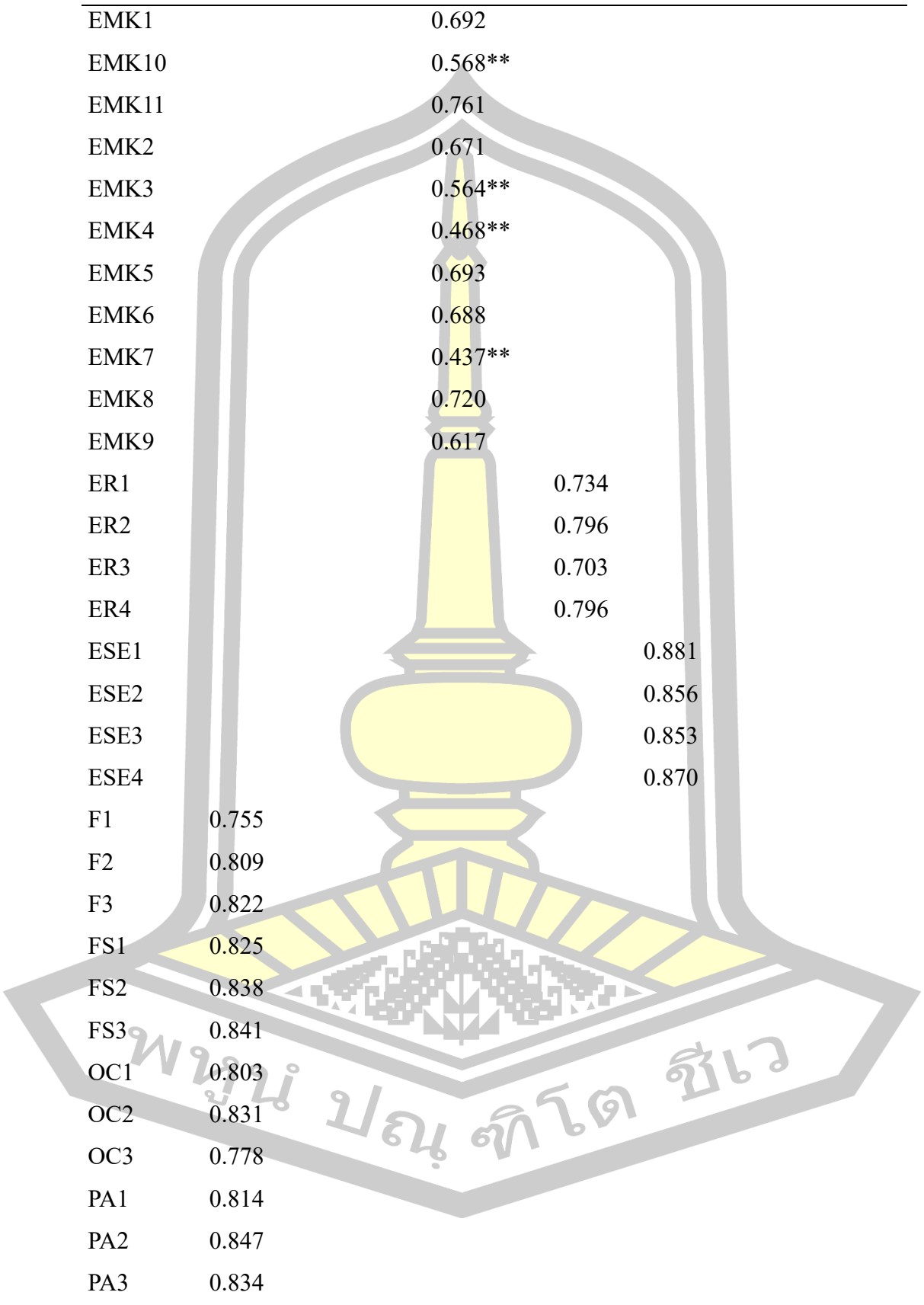
As can be seen from the above table, the total variance explained is 31.654%, which is less than 50%, and the CMB risk is low, indicating that the research is less affected by common methodological bias in data collection, presentation of variable relationships, reliability of the conclusions, and theoretical constructs, which provides a more reliable guarantee for the results and conclusions of the research .

3.5.3 Factor Analysis

The item scales were validated using Principal Component Factor Analysis (PCFA) and the results are presented in Table 10. The internal consistency analysis showed a minimum of 0.70 (0.60 in the exploratory research) in the reliability of the reflective indicator loadings (F Hair et al, 2019). From Table 10, it can be seen that questions 7 and 8 measuring entrepreneurial metacognitive experience and questions 3, 4, 7 and 10 measuring entrepreneurial metacognitive knowledge should be deleted, as detailed in Table11:

Table 10 Factor loadings of Main items

	EFF	EME	EMK	ER	ESE	SS	SWB
EME1		0.732					
EME2		0.729					
EME3		0.705					
EME4		0.705					
EME5		0.708					
EME6		0.664					
EME7		0.352**					
EME8		0.240**					



EMK1	0.692		
EMK10	0.568**		
EMK11	0.761		
EMK2	0.671		
EMK3	0.564**		
EMK4	0.468**		
EMK5	0.693		
EMK6	0.688		
EMK7	0.437**		
EMK8	0.720		
EMK9	0.617		
ER1		0.734	
ER2		0.796	
ER3		0.703	
ER4		0.796	
ESE1			0.881
ESE2			0.856
ESE3			0.853
ESE4			0.870
F1	0.755		
F2	0.809		
F3	0.822		
FS1	0.825		
FS2	0.838		
FS3	0.841		
OC1	0.803		
OC2	0.831		
OC3	0.778		
PA1	0.814		
PA2	0.847		
PA3	0.834		

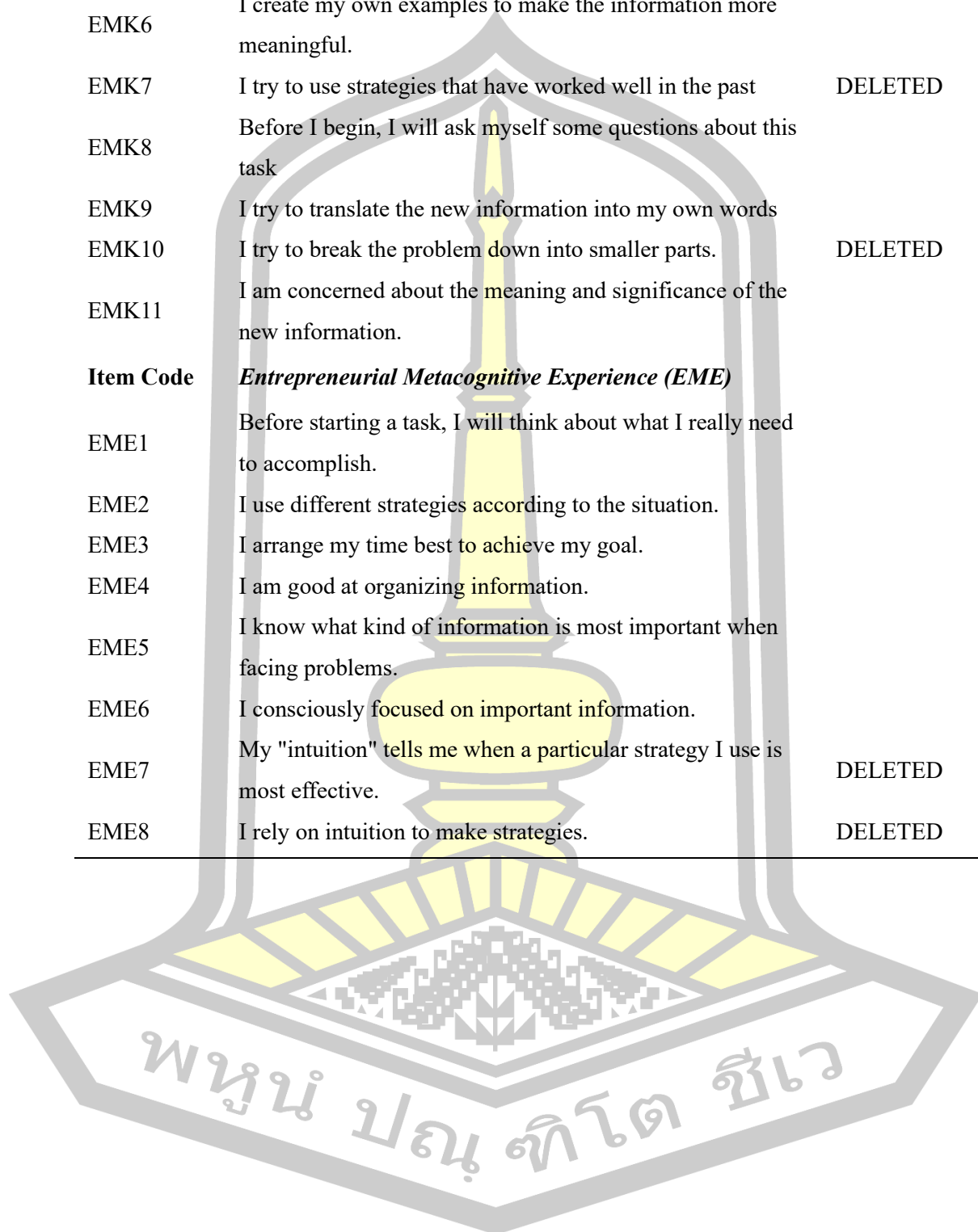
PI1	0.809	
PI2	0.813	
PI3	0.767	
SS1		0.897
SS2		0.863
SS3		0.827
SWB1		0.850
SWB2		0.801
SWB3		0.838
SWB4		0.783
SWB5		0.612
TSE1	0.788	
TSE2	0.806	
TSE3	0.816	
VE1	0.815	
VE2	0.815	
VE3	0.769	

Note: ** Based on the rule of thumb of PCFA, the factor loading of EME7, EME8, EMK3, EMK4, EMK7, EMK10 is lower than 0.6, it should be deleted (F Hairt al. 2019).

Table 11 Reasons to delete some items of ACAP construct

Item Code	<i>Entrepreneurial Metacognitive Knowledge (EMK)</i>	<i>Deleted Item</i>
EMK1	I think of several ways to solve the problem, and then choose the best way	
EMK2	Before I begin, I will challenge my assumptions about the task	
EMK3	I think about how others will react to my behavior	DELETED
EMK4	I find myself automatically adopting strategies that have worked well in the past.	DELETED

EMK5	I perform best when I already understand the task.	
EMK6	I create my own examples to make the information more meaningful.	
EMK7	I try to use strategies that have worked well in the past	DELETED
EMK8	Before I begin, I will ask myself some questions about this task	
EMK9	I try to translate the new information into my own words	
EMK10	I try to break the problem down into smaller parts.	DELETED
EMK11	I am concerned about the meaning and significance of the new information.	
Item Code	<i>Entrepreneurial Metacognitive Experience (EME)</i>	
EME1	Before starting a task, I will think about what I really need to accomplish.	
EME2	I use different strategies according to the situation.	
EME3	I arrange my time best to achieve my goal.	
EME4	I am good at organizing information.	
EME5	I know what kind of information is most important when facing problems.	
EME6	I consciously focused on important information.	
EME7	My "intuition" tells me when a particular strategy I use is most effective.	DELETED
EME8	I rely on intuition to make strategies.	DELETED



Chapter IV

Empirical Research

The previous chapter described the research methodology, including sample selection, data collection procedures to confirm the conceptual framework of this research, and explained the principles of data analysis, applying the results of PLS-SEM runs to remove the question items with factor loading threshold supported lower than 0.6, and reconstructing the constructs of the variables. Chapter four analyzes the data based on the latest constructs and explains all the results of this research obtained from the statistical analysis which was conducted to determine all the hypotheses. Therefore, this research divided Chapter 4 into 3 sections to present the results of the research and the profile of the sample, each section includes (1) characteristics of the respondents, (2) descriptive statistics of all constructs and to test the hypotheses of the SEM (correlation test), and (3) hypotheses testing and results.

4.1 Respondent Characteristics

The main respondents are entrepreneurs from Guangdong, Hong Kong and Macao. Guangdong, Hong Kong and Macao is the most innovative and dynamic bay area in China, gathering young entrepreneurs from Hong Kong and Macao, returnee talents and entrepreneurs from the Mainland. Guangdong, Hong Kong and Macao entrepreneurs have remarkable representativeness in terms of policy support, infrastructure, innovation platforms, diversified groups, cross-sectoral cooperation, and successful cases, which can provide a wealth of materials and cases for the research of entrepreneurial activity.

Based on the information collected, this research can indicate several key characteristics of the respondents. Among them, the type of industry in which the enterprise is located is reorganized into five groups based on their relevance from the 20 categories of industries on the official website of the China Bureau of Statistics,

including the agriculture group, the manufacturing group, the service group, the construction group, and the public utilities group. Table 12 shows the respondent profiles of the 292 Guangdong, Hong Kong, and Macao Greater Bay Area entrepreneurs in China.

Table 12 Demographic Profile of Entrepreneurs in the Guangdong-Hong Kong-Macao Greater Bay Area

Variables	Scale	Frequency	Percentage
Gender	Male	202	69.2
	Female	90	30.8
	Total	292	100
Type of industry	Agriculture	26	8.9
	Manufacturing	77	26.4
	Services	165	56.5
	Construction Industry	19	6.5
	Public Utilities	5	1.7
Income	Less than 100,000	62	21.2
	100,000-300,000	89	30.5
	300,000-500,000	69	23.6
	500,000-700,000	37	12.7
	700,000 or more	35	12
Educational level	Junior high school and below	13	4.5
	High school	24	8.2
	Bachelor	207	70.9
	Master	34	11.6
	Doctor	14	4.8

As can be seen from Table 13, male respondents accounted for 69.2% and female respondents accounted for 30.8%, with men accounting for a higher percentage than women; in terms of the type of industry in which the business is located, the highest percentage was 56.5% in the services group, followed by 26.4% in the manufacturing group, and the smallest percentage was in the public utilities group; in terms of the level of income, in terms of RMB, the annual income of \$100,000-\$300,000 entrepreneurs accounted for 30.5%, annual income of \$300,000 to \$500,000 accounted for 23.6%, annual income of less than \$100,000 accounted for 21.2%, \$500,000 to \$700,000 accounted for 12.7%, and those with more than \$700,000 accounted for 12%; in terms

of the level of education, the majority of the interviewees had a university education level, which accounted for 70.9%, followed by master's degree at 11.6%, high school education at 8.2%, doctorate 4.8%, and junior high school and below 4.5%. From the above data on respondents' characteristics, the sample coverage is broad.

4.2 Correlation Analysis

In this research, Pearson's correlation analysis with bivariate analysis was conducted for each pair of variables, and the results of the correlation analysis illustrated the problem of multicollinearity and examined the relationship between the variables. As a result, the correlation matrix illustrates the correlation between the 13 constructs which present the relative strength and direction of the linear relationship between the constructs in the correlation matrix as detailed in Table 13.

Table 13 Pearson's correlation matrix

	EMK	EME	ER	SWB	EFF	SS	ESE	SL	IN	BLJ	Edu	Gen	IS
EMK	1												
EME	.718**	1											
ER	.700**	.771**	1										
SWB	.198**	.242**	.317**	1									
EFF	-.282**	-.291**	-.324**	-.377**	1								
SS	.337**	.332**	.420**	.336**	-.038	1							
ESE	.605**	.586**	.661**	.215**	-.206**	.425**	1						
SL	-.023	-.043	-.103	-.276**	.340**	-.078	-.034	1					
In	.353**	.309**	.339**	.241**	-.357**	.151**	.328**	-.055	1				
BLJ	.292**	.278**	.340**	.312**	-.289**	.234**	.301**	-.337**	.268**	1			
Edu	.201**	.168**	.166**	.043	-.015	.105	.170**	.072	.286**	.119*	1		
Gen	-.059	-.007	-.056	-.003	.013	-.199**	-.170**	-.068	-.217**	-.012	-.115*	1	
IS	.043	.121*	.08	.008	.051	-.011	.032	.07	-.014	-.036	.001	.101	1

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; SL= stress level, In=Income, BLJ=Balance of life and job, Edu=education, Gen=gender, IS=Industry Style.

We ran the Pearson correlation table shown in Table 13 to reveal the associations between the variables in this research . Although the correlation coefficients lack predictive power and causality, the numbers reflect a preliminary analysis that characterizes the data. The correlation table can also indicate trends that lead to support for the hypothesis. More specifically, Table 14 shows the significant results between the main variables. As expected, entrepreneurial metacognitive knowledge showed a positive correlation with entrepreneurial metacognitive experience ($r = 0.718$, $p\text{-value} < 0.01$), there was a significant correlation between entrepreneurial metacognitive knowledge and entrepreneurial resilience ($r = 0.700$, $p\text{-value} < 0.01$), significant correlation between entrepreneurial metacognitive experience and entrepreneurial resilience ($r = 0.771$, $p\text{-value} < 0.01$), entrepreneurial resilience is significantly correlated with subjective well-being ($r = 0.317$, $p\text{-value} < 0.01$), entrepreneurs' fear of failure is significantly correlated with entrepreneurial metacognitive knowledge, entrepreneurial metacognitive experience, entrepreneurial resilience, and subjective well-being ($p\text{-value} < 0.01$), but negatively correlated, which also coincides with the fact of the high risk of the actual entrepreneurship, so the higher the entrepreneurs' fear of failure, the more the process of recovering the entrepreneurial confidence from the failure, the more difficult the process of recovering entrepreneurial confidence from failure and the lower the perceived Well-being. Regarding the correlation results of the control variables, we found that only stress level, income, work-life balance level and subjective well-being are significantly correlated, where entrepreneurs with higher stress level have lower subjective well-being and entrepreneurs with higher income and higher work-life balance level have higher subjective well-being.

4.3 Measurement of Model Assessment

4.3.1 Confirmatory Factor Analysis (CFA) Surveys

Table 15 reveals the results of the Confirmatory Factor Analysis (CFA) of construct reliability. CFA is widely used to investigate whether each indicator or item can reliably represent the construct of interest in the research. According to Table 11, each item representing the construct passed the factor loading threshold of 0.6 (F Hair et al., 2019), indicating satisfactory reliability.

Cronbach's alpha (Cronbach's alpha coefficient) is an indicator of reliability used to assess the internal consistency of a scale. It measures the correlation between the items (questions) in the scale, thus assessing whether the entire scale measures the same concept or construct. Specifically, the Cronbach's alpha value reflects the degree of consistency of the scores of the items in the scale; the closer the value is to 1, the higher the internal consistency of the scale, i.e., the more the items correlate with each other, the higher the reliability of the scale. The Cronbach's alpha values for each variable in Table 15 are greater than 0.7, which is acceptable. In addition, the table shows the composite reliability (C.R.) for each construct, a metric that meets acceptable standards (Hair et al., 2021a). Composite reliability reflects the internal consistency of the items and is similar to or a substitute for Cronbach's alpha (Netemeyer et al., 2003), which is used to measure the variance of the true scores and the total scale scores (Brunner & Süß, 2005). In addition, mean variance extracted (AVE) values are shown in Table 14. AVE is an indicator of convergent validity and should have a value above 0.50 (Hair et al., 2009). Convergent validity is the level of confidence in how well the construct measures through its indicators (Carlson & Herdman, 2012). Based on the analysis, the main constructs of interest in this research had AVE values above 0.50, which can be considered an acceptable level of convergent validity.

Table 14 Confirmatory factor analysis with factor loadings, composite reliability and average variance extracted

Constructs	Items	Factor Loadings	Cronbach's alpha	C.R.	AVE
EME	EME1	0.738	0.806	0.861	0.507
	EME2	0.735			
	EME3	0.71			
	EME4	0.711			
	EME5	0.708			
	EME6	0.669			
EMK	EMK1	0.733	0.834	0.875	0.502
	EMK2	0.669			
	EMK5	0.708			
	EMK6	0.705			
	EMK8	0.713			
	EMK9	0.64			
ER	EMK11	0.783	0.754	0.844	0.575
	ER1	0.732			
	ER2	0.798			
	ER3	0.704			
	ER4	0.796			
ESE	ESE1	0.881	0.891	0.922	0.748
	ESE2	0.856			
	ESE3	0.852			
	ESE4	0.871			
EFF	F1	0.755	0.974	0.976	0.656
	F2	0.809			
	F3	0.822			
	FS1	0.825			
	FS2	0.838			
	FS3	0.841			
OC	OC1	0.803			
	OC2	0.831			

Constructs	Items	Factor Loadings	Cronbach's alpha	C.R.	AVE
	OC3	0.778			
	PA1	0.814			
	PA2	0.847			
	PA3	0.834			
	PI1	0.809			
	PI2	0.813			
	PI3	0.767			
	TSE1	0.788			
	TSE2	0.806			
	TSE3	0.816			
	VE1	0.815			
	VE2	0.815			
	VE3	0.769			
	SS1	0.898			
SS	SS2	0.863	0.830	0.897	0.744
	SS3	0.826			
	SWB1	0.85			
	SWB2	0.794			
SWB	SWB3	0.831	0.842	0.887	0.613
	SWB4	0.789			
	SWB5	0.633			

This research also assessed discriminant validity using the Fornell-Larcker criterion (1981). Distinguishing validity indicates the irrelevance between different constructs. The analysis of discriminant validity is considered important for variance-based structural equation modeling (SEM) such as partial least squares SEM (PLS-SEM) (Henseler et al., 2015), especially in the fields of management information systems (Ringle et al., 2012), marketing (Hair et al., 2012b), and strategic management (Hair et al., 2012a). Among the various methods for testing discriminant validity, the Fornell-

Larcker criterion is commonly used for PLS (Hair et al., 2017b). According to the Fornell-Larcker criterion, discriminant validity can be established when the square root of the average variance extracted (AVE) is higher than its correlation with other constructs. The results of the discriminant validity analysis of the Fornell-Larcker criterion for the three main constructs in this research ,entrepreneurial metacognitive knowledge, entrepreneurial metacognitive experience, entrepreneurial resilience, subjective well-being, fear of entrepreneurial failure, social support, and entrepreneurial self-efficacy - are shown in Table15.The results of the research show that the diagonal of the AVE square root is greater than the correlation coefficient of the lower triangle. Therefore, the constructs in this research can be considered to have passed an acceptable test of discriminant validity.

Table 15 Convergent and Discriminant Validity

	EFF	EME	EMK	ER	ESE	SS	SWB
EFF	0.810						
EME	-0.295	0.712					
EMK	-0.290	0.722	0.709				
ER	-0.330	0.774	0.709	0.758			
ESE	-0.220	0.573	0.597	0.654	0.865		
SS	-0.038	0.331	0.334	0.423	0.422	0.863	
SWB	-0.405	0.273	0.231	0.363	0.255	0.349	0.782

4.3.2 Model Fit Analysis

This research uses Partial Least Squares Structural Equation Modeling (PLS-SEM), which is based on analysis of variance (ANOVA) and focuses on predictive power and explanatory variables (R^2), which is suitable for exploratory studies and complex models. In the process of using this model we need to focus on assessing the degree of model fit, firstly, the model explanatory power includes R^2 (R-Square), which measures the proportion of variance explained by endogenous variables (e.g., the dependent variable), and the closer the value is to 1 the better; and Q^2 (Predictive Relevance),

which is calculated by the Blindfolding method and assesses the predictive power of the model . If $Q^2 > 0$, it indicates that the model has predictive relevance; $Q^2 > 0.35$ is excellent. The second is to pay attention to the path coefficient significance: Bootstrap test, test path coefficients (e.g., β -value) of statistical significance ($p < 0.05$); effect size (f^2): measure the intensity of the influence of exogenous variables on endogenous variables, $f^2 \geq 0.02$ is small effect, ≥ 0.15 is medium effect, ≥ 0.35 is large effect. Finally, attention needs to be paid to model complexity: SRMR (Standardized Root Mean Square Residual): a measure of the standardized root mean square of the model residuals, with an SRMR value of < 0.08 being a good fit (Henseler et al., 2016). The results of the model fit goodness-of-fit analysis associated with this research are shown in Tables 16 and 17 .

Table 16 Model Explanatory Power Metrics and Path Coefficient Significance Metrics

	f^2	R^2	Q^2	P-value
EME -> ER	0.343			0.000
EMK -> ER	0.113			0.000
ER -> SWB	0.049			0.002
EME-> SWB				0.005
EMK-> SWB				0.011
ER		0.653	0.366	
SWB		0.220	0.121	

NOTE: f^2 =f -square , Q^2 =Q-square, R^2 =R-square

Table 17 Model Fit

	Saturated model	Estimated model
SRMR	0.057	0.079
χ^2	2676.891	2730.937
NFI	0.763	0.759

As we can see from Table 17, the results of the path analysis in this research show that the effect sizes (f^2) and explained variance (R^2) of the exogenous variables on the endogenous variables are statistically significant. Specifically:

The effect size of $EME \rightarrow ER$ of $f^2 = 0.343$ is a large effect (Cohen, 1988), suggesting that Entrepreneurial Metacognitive Experience (EME) is a strong explanatory power of Entrepreneurial Resilience (ER) and the path coefficient is significant ($p < 0.001$).

The effect size for $EMK \rightarrow ER$ was $f^2 = 0.113$, which is close to a medium effect, suggesting that while the effect of Entrepreneurial Metacognitive Knowledge (EMK) on ER was significant ($p < 0.001$), the actual contribution was relatively limited.

The effect size for $ER \rightarrow SWB$ was small ($f^2 = 0.049$), but its significance ($p = 0.002$) suggests that the direct effect of Entrepreneurial Resilience on Subjective Well-Being (SWB) still requires theoretical attention (Hair et al., 2017).

For endogenous variables, ER's $R^2 = 0.653$ indicates that the model explains 65.3% of its variance and predictive correlation $Q^2 = 0.366 (>0.35)$, showing strong predictive power, while SWB's $R^2 = 0.220$ vs. $Q^2 = 0.121$ suggests that there is room for improvement in the model's ability to explain and predict it (Henseler et al., 2016).

As we can see from Table 18, the model fitting results show that the standardized root mean square residual (SRMR = 0.079) of the estimated model is close to the acceptable threshold (<0.08), indicating a better control of the covariance residuals (Hu & Bentler, 1999).

4.3.3 Results from PLS-SEM

Figure 1 illustrates the proposed framework on the interrelationship between entrepreneurial metacognitive knowledge, entrepreneurial metacognitive experience, entrepreneurial resilience and subjective well-being. In order to better reflect the role of control variables, four control variables that can be directly measured, namely income, education level, stress level, and work-life balance level, are set as control variable 1; gender and the type of industry in which the business is located cannot be directly measured, and need to be set as a dummy variable, and the dummy variable for gender is set as Gender1, and the type of industry in which the business is located is

divided into five groups, with four dummy variables, IT1, IT2, IT3, and IT4. The two dummy variables are set as control variable 2; The figure also shows the items associated with each potential structure. As mentioned earlier, the factor loadings for all items are displayed in Table 14. In addition, Figure 2 reveals the path coefficients associated with the hypotheses.

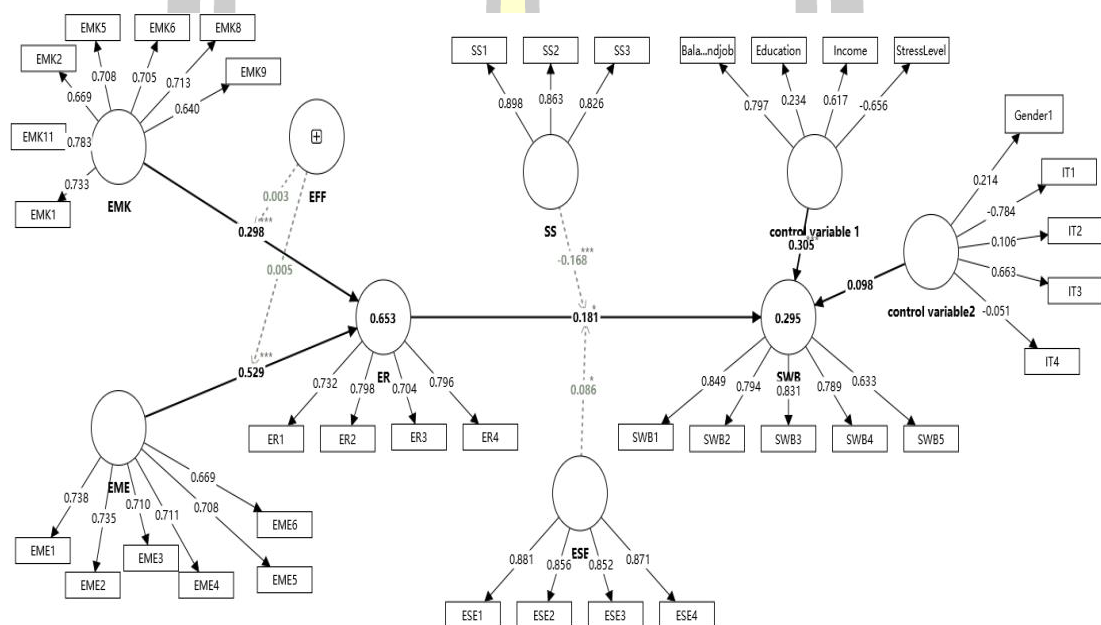


Figure 2 The proposed framework for entrepreneurial metacognition, entrepreneurial resilience, and subjective well-being

Based on the above model, PLS-SEM ran the Bootstrapping method to obtain the path coefficients, direct effects, indirect effects and control variable effects of the structural equation model, which are shown in Table 18. In the table, the parameters regarding the strength and direction of the relationship between entrepreneurial metacognitive knowledge, entrepreneurial metacognitive experience, entrepreneurs' fear of failure, entrepreneurial resilience, social support, entrepreneurial self-efficacy, subjective well-being, and the main variables of the original sample are shown in the table. Well-being main variables the strength and direction of the relationship between the parameters,

generally we need to focus on the size, direction and significance of the path coefficients.

Table 18 Results from PLS-SEM

	β	S.E.	t	P- value
Control Variables				
Control variable 1-> SWB	0.305	0.074	4.109	0.000
Control variable2-> SWB	0.098	0.254	0.386	0.700
Direct Effects				
EFF -> ER	-0.088	0.043	2.044	0.042
EME -> ER	0.529	0.055	9.568	0.000
EMK -> ER	0.298	0.065	4.559	0.000
ER -> SWB	0.181	0.095	1.912	0.057
SS -> SWB	0.217	0.056	3.882	0.000
EME -> SWB	0.096	0.052	1.830	0.068
EMK -> SWB	0.054	0.031	1.765	0.079
Indirect Effects				
EME -> ER -> SWB	0.096	0.052	1.830	0.068
EMK -> ER -> SWB	0.054	0.031	1.765	0.079
SS x ER -> SWB	-0.168	0.049	3.417	0.001
ESE x ER -> SWB	0.086	0.048	1.807	0.072

From Table 19 ,we can see that control variable 1 (income, education, stress level, work-life balance level) has a significant positive effect ($\beta= 0.305$, p-value < 0.01) on our dependent variable subjective well-being, and that entrepreneurs who have higher education, higher income, and higher level of work-life balance have a higher level of subjective well-being.

In the direct effect, entrepreneurial metacognitive knowledge positively affected entrepreneurial resilience ($\beta = 0.298$, p -value < 0.001), and hypothesis H1a was valid; Entrepreneurial metacognitive knowledge significantly and positively affects subjective well-being at the 10% level of significance ($\beta = 0.054$, p -value < 0.1), suggesting that hypothesis H1b is valid;

Entrepreneurial metacognitive experience positively affects entrepreneurial resilience ($\beta = 0.529$, p -value < 0.001), hypothesis H2a supported; the

Entrepreneurial metacognitive experience significantly and positively affects subjective well-being at the 10% level of significance ($\beta = 0.096$, p -value < 0.1), and hypothesis H2b supported;

Entrepreneurial resilience positively affects subjective well-being ($\beta = 0.181$, p -value < 0.057), with a significant relationship at the 10% level of significance;

Among the indirect effects, the self-help method (Streukens & Leroi-Werelds, 2016) was used to analyze the mediating effects, and based on the results of the self-help method run, we found that there is a significant indirect relationship between entrepreneurial resilience and subjective well-being, with entrepreneurial resilience mediating the relationship between entrepreneurial metacognitive knowledge and subjective well-being ($\beta = 0.054$, p -value < 0.1), hypothesis H5a supported; entrepreneurial tenacity mediates the relationship between entrepreneurial metacognitive experience and subjective well-being ($\beta = 0.096$, p -value < 0.1), hypothesis H5b supported.

A moderating effect can also be seen from the indirect effect and the interaction term of social support and entrepreneurial tenacity was found to have a significant negative effect on subjective well-being ($\beta = -0.168$, p -value = 0.001), which suggests that the interaction of social support and entrepreneurial tenacity has a significant effect on subjective well-being, but that the effect of entrepreneurial tenacity on subjective well-

being is weaker when the level of social support is too high, and that hypothesis H4a supported.

The interaction term between entrepreneurial self-efficacy and entrepreneurial resilience has a significant positive effect on subjective well-being ($\beta = 0.086$, p -value < 0.1), which suggests that entrepreneurial resilience has a stronger effect on subjective well-being when entrepreneurial self-efficacy levels are higher. Hypothesis H4b supported.

However, the interaction terms of entrepreneurs' fear of failure with entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience did not have a significant effect on entrepreneurial resilience, and therefore hypotheses H3a and H3b were not valid.

Taken together, the results of the PLS-SEM statistics and the hypothesis tests are summarized as described in Table 19.

Table 19 Summary of Hypotheses Testing Results

Hypotheses	The Statement	Results
H1a	Metacognitive Knowledge affects Entrepreneurial Resilience	Supported
H1b	Metacognitive Knowledge affects Subjective Well-Being	Supported
H2a	Metacognitive Experience affects Entrepreneurial Resilience	Supported
H2b	Metacognitive Experience affects Subjective Well-Being	Supported
H3a	Entrepreneurial Fear of Failure moderates the relationship between Metacognitive Knowledge and Entrepreneurial Resilience	Not Supported
H3b	Entrepreneurial Fear of Failure moderates the relationship between Metacognitive Experience and Entrepreneurial Resilience	Not Supported
H4a	Social Support moderates the relationship between Entrepreneurial Resilience and Subjective Well-Being	Supported
H4b	Entrepreneurial self-efficacy moderates the relationship between Entrepreneurial Resilience and Subjective Well-Being	Supported

Hypotheses	The Statement	Results
H5a	Entrepreneurial Resilience mediates the relationship between Metacognitive Knowledge and Subjective Well-Being	Supported
H5b	Entrepreneurial Resilience mediates the relationship between Metacognitive Experience and Subjective Well-Being	Supported



Chapter V

Discussion and Conclusions

The previous chapter demonstrated the respondent characteristics, testing the validity of each variable and the results of the hypothesis testing, therefore, this chapter aims to discuss the results based on all the hypotheses, which were empirically tested through SEM statistics. In addition, theoretical and managerial implications, limitations, and suggestions for further research are discussed. Finally, the conclusion is a general summary of the research .

This concluding chapter includes the effect of entrepreneurial metacognition on subjective well-being, based on the high risk and complexity of entrepreneurs in the entrepreneurial process, the mediating variable, namely entrepreneurial resilience, was constructed based on a large body of literature to explain how entrepreneurial metacognition affects the process of subjective well-being by influencing entrepreneurial resilience and thus subjective well-being.

This conclusion chapter also includes the impact of entrepreneurial resilience on subjective well-being. In addition, in order to provide more specific knowledge about external factors that also affect the subjective well-being of entrepreneurs in the Guangdong-Hong Kong-Macao Greater Bay Area. Therefore, this research investigated entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience through the lens of antecedent variables. In addition, in order to be able to understand the complexity of the influencing factors of entrepreneurial resilience and subjective well-being more accurately, entrepreneurial resilience and subjective well-being were statistically analyzed from the perspective of moderating variables, and entrepreneurs' fear of failure was added to affect entrepreneurial resilience by altering entrepreneurial metacognition, and the influencing factors of entrepreneurs' subjective well-being were more diverse, thus adding two more variables,

namely social support and entrepreneurial self-efficacy. variables to affect the research of subjective well-being by altering entrepreneurial resilience.

This research also adds the impact on entrepreneurial resilience and subjective well-being from the perspective of moderating variables. This research examined entrepreneurs in the Guangdong, Hong Kong, and Macao Greater Bay Area (GBA), a group that is able to typify Chinese entrepreneurs due to the geographic and policy advantages of their region. There are five specific research questions: 1) Does entrepreneurial metacognition affect subjective well-being? 2) Does entrepreneurial metacognition act on subjective well-being through entrepreneurial resilience? 3) Does fear of entrepreneurial failure moderate the relationship between entrepreneurial metacognition and entrepreneurial resilience? 4) Does social support moderate the relationship between entrepreneurial resilience and subjective well-being? 5) Does entrepreneurial self-efficacy moderate the relationship between entrepreneurial resilience and subjective well-being? All five questions are explained by the results and conclusions in Table 20, and the hypotheses summarizing the results are displayed on Figure 3.

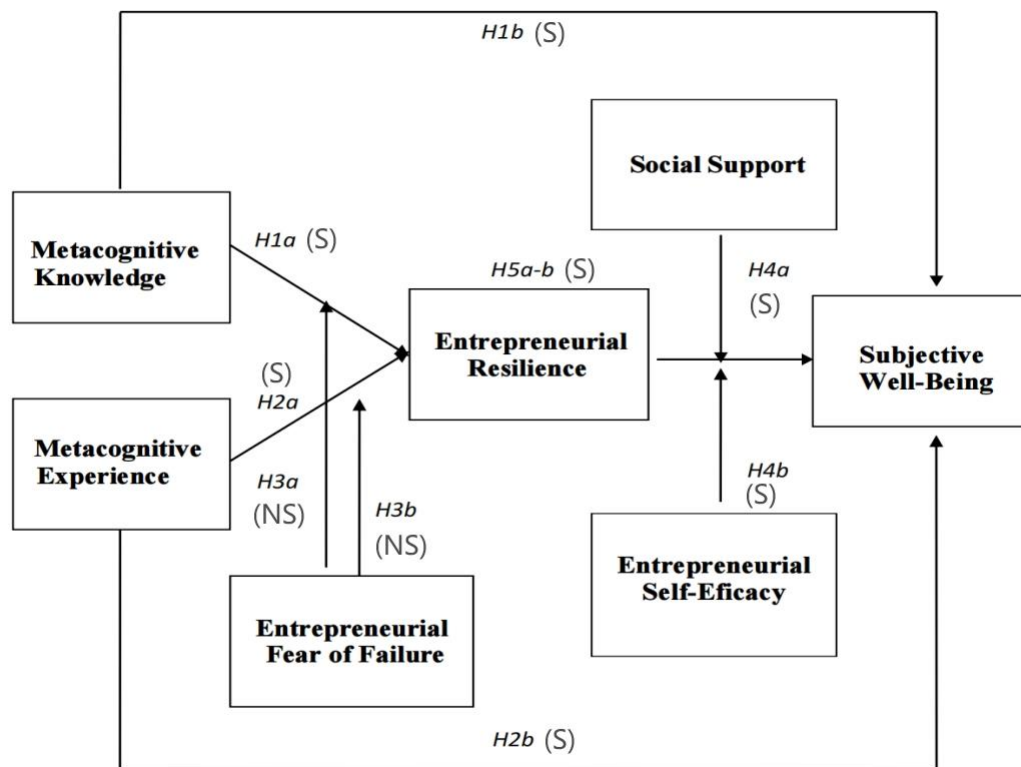
Table 20 Summary of the Results and Conclusions in All Hypothesis Testing

Research Question	Hypotheses	Results	Conclusions
Whether entrepreneurial metacognition affects? Entrepreneurial Resilience ?	H1a-H2a H1b -H2b	Entrepreneurial metacognitive knowledge positively affects entrepreneurial resilience ($\beta=0.298$, $p\text{-value} < 0.001$), and hypothesis H1a is established; entrepreneurial metacognitive experience positively affects entrepreneurial resilience ($\beta=$	Supported H1a-H2a H1b -H2b

Research Question	Hypotheses	Results	Conclusions
affects subjective well-being?		0.529, p-value < 0.001), and hypothesis H2a is established. Entrepreneurial metacognitive knowledge has a significant positive impact on subjective well-being at the 10% significance level; entrepreneurial metacognitive experience has a significant positive impact on subjective well-being at the 10% significance level.	
2. Whether entrepreneurial metacognition affects subjective well-being through entrepreneurial resilience?	H5a-H5b	Entrepreneurial resilience plays a mediating role in the relationship between entrepreneurial metacognitive knowledge and subjective well-being ($\beta = 0.054$, p-value < 0.1), and hypothesis H5a is established; entrepreneurial resilience plays a mediating role in the relationship between entrepreneurial metacognitive experience and subjective well-being ($\beta = 0.096$, p-value < 0.1), and hypothesis H5b is established.	Supported H5b -H5b
3. Whether fear of entrepreneurial	H3a -H3b	The interaction between entrepreneurs' fear of failure	Not Supported H3a – H3b

Research Question	Hypotheses	Results	Conclusions
failure regulates the relationship between entrepreneurial metacognition and entrepreneurial resilience?		and entrepreneurial metacognitive knowledge has no significant effect on entrepreneurial resilience ; The interaction between entrepreneurs' fear of failure and entrepreneurial metacognitive experience has no significant effect on entrepreneurial resilience.	
4. Whether support modulate the relationship between entrepreneurial resilience and subjective well-being?	social H4a	The interaction term between social support and entrepreneurial resilience has a significant negative impact on subjective well-being ($\beta=-0.168$, $p\text{-value} = 0.001$), which indicates that the interaction between social support and entrepreneurial resilience has a significant impact on subjective well-being.	Supported H4a
5. Whether entrepreneurial self-efficacy modulate the relationship between entrepreneurial	H4b	The interaction term between entrepreneurial self-efficacy and entrepreneurial resilience has a significant negative impact on subjective well-being ($\beta=0.086$, $p\text{-value} < 0.1$), which indicates that the	Supported H4b

Research Question	Hypotheses	Results	Conclusions
resilience and subjective well-being?		interaction between entrepreneurial self-efficacy and entrepreneurial resilience has a significant impact on subjective well-being.	



Note: (S) = Supported ;(NS) = Not Supported.

Figure 3 The Summary of Hypothesis Testing

5.1 Discussions

5.1.1 The effect of entrepreneurial metacognition on subjective well-being

Hypothesis testing found that both entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience have significant positive effects on subjective well-being (H1b-H2b). This is because entrepreneurial metacognition can effectively help entrepreneurs adapt to dynamically changing environments, enhance dynamic cognitive abilities, and facilitate entrepreneurs to make effective strategic decisions in unstable, complex, and dynamic entrepreneurial environments (Ju Xu et al., 2021). Subjective well-being based on the pleasure theory refers to an individual's emotional experience and life evaluation (Diener et al., 1999), and any gain from entrepreneurial activities can be a source of well-being. For example, Rahman et al. (2016) took entrepreneurs at the bottom of the society as the research object and found that: (1) the financial performance of entrepreneurship (e.g., profit, sales, etc.) can satisfy the basic needs of entrepreneurs to improve the entrepreneurs' financial situation, which improves the entrepreneurs' subjective well-being, i.e., wealth leads to Well-being; (2) the non-financial performance of entrepreneurship (e.g., trust of the customers, contribution to the society, and respect of others, etc.) can also increase subjective well-being. The findings of this research also provide ample evidence that entrepreneurial metacognition helps entrepreneurs adapt to dynamic environments by facilitating the development of effective strategies and thus improving firm performance, and that firm performance can improve entrepreneurs' subjective well-being. This finding also elaborates the antecedents of entrepreneurs' subjective well-being from a metacognitive perspective, enriching the research on antecedent variables of entrepreneurs' subjective well-being.

5.1.2 Entrepreneurial metacognition has a positive effect on entrepreneurial resilience

Hypothesis testing found that entrepreneurial metacognition has a significant positive effect on entrepreneurial resilience (H1a-H2a). Entrepreneurs' cognition during the entrepreneurial process changes as the environment evolves (Haynie & Shepherd, 2009), and entrepreneurial metacognition places more emphasis on the entrepreneur's

understanding and awareness of his or her own cognition in an entrepreneurial situation, and is the ability to reflect on, understand, and control cognitive processes related to the entrepreneurial goals or objectives (Bastian & Zucchella, 2022). This reflective process enables members of a startup to learn to cope with failure through thoughtfulness and effort, which motivates the firm to choose a relatively positive attitude toward failure. This immediate retrospective review of failures can also be effective in a short period of time (Muehlfeld et al., 2012), helping firms to recover from adversity more quickly and efficiently and contributing to the building of stronger entrepreneurial resilience.

5.1.3 Entrepreneurs' Fear of Failure Does Not Moderate the Relationship Between Entrepreneurial Metacognition and Entrepreneurial Resilience Significantly

Although fear of entrepreneurial failure has been identified as an important factor influencing entrepreneurs' psychological states and behaviors (Cacciotti et al., 2016), this research found that its moderating effect on the relationship between entrepreneurial metacognition and entrepreneurial resilience was not significant. This result may be related to (1) the influence of cultural context: in the Guangdong-Hong Kong-Macao Greater Bay Area, entrepreneurial failure may be viewed as a learning opportunity rather than a stigma (Huang et al., 2019), and thus the fear of failure has a weaker effect on entrepreneurs' cognition and resilience. (2) Sample characteristics: the sample of this research may consist mainly of experienced entrepreneurs who are better able to cope with the fear of failure, resulting in a less significant moderating effect (Shepherd et al., 2020). (3) Limitations of the measurement instrument: existing measurement instruments may not adequately capture the complexity and multidimensionality of entrepreneurial fear of failure, leading to biased findings (Cacciotti et al., 2016). This finding is inconsistent with the results of some studies, suggesting that future research needs to further explore the mechanism of action of fear of entrepreneurial failure and its boundary conditions.

5.1.4 Inverse moderating effect of social support on entrepreneurial resilience and subjective well-being

The inverse moderating effect of social support on the relationship between entrepreneurial resilience and subjective well-being in entrepreneurial contexts can be explained through mechanisms such as the substitution effect in resource conservation theory (Hobfoll, 1989), the reversal of the stress-buffering hypothesis (Bolger et al., 2000), and role conflict and social desirability stress (Parasuraman & Simmers, 2001) and other mechanisms for explanation. Research has shown that social support is not always positive, and its effects are dependent on context, type of support, and individual perceptions (Southwick et al., 2014). For example, in an entrepreneurial setting, high social support may lead entrepreneurs to over-rely on external resources, thereby undermining the contribution of their entrepreneurial resilience to subjective well-being. In addition, social support may trigger role conflict or increase psychological burdens, further weakening the positive impact of entrepreneurial resilience on subjective well-being. Future research needs to further explore the specific effects of different forms of social support (e.g., emotional versus instrumental support) on the moderating effect.

5.1.5 The moderating role of entrepreneurial self-efficacy on entrepreneurial resilience and subjective well-being

Entrepreneurial self-efficacy can be a motivating force or a de-motivating force, depending on one's self-enhancing or self-defeating beliefs. Although challenging environments can negatively impact self-efficacy, those with highly developed self-efficacy skills are better able to cope. Therefore entrepreneurs with entrepreneurial resilience are able to effectively influence the entrepreneurial process, entrepreneurial confidence is boosted, and positive entrepreneurial situations are released, and the emotions of entrepreneurs during the entrepreneurial process actually constitute an aspect of entrepreneurial well-being (Yu, Xiaoyu, Meng, Xiaotong, Cai, Li, Zhao, Hongdan, 2018). Therefore entrepreneurs with high entrepreneurial self-efficacy can

achieve higher subjective well-being in entrepreneurial dilemma recovery, and hypothesis H4b is supported.

5.1.6 The mediating role of entrepreneurial resilience between entrepreneurial metacognition and subjective well-being

The model estimation results show that entrepreneurial resilience positively affects subjective well-being ($\beta = 0.181$, $p\text{-value} < 0.057$), with a significant relationship at the 10% level of significance, and that entrepreneurial metacognition strengthens entrepreneurs' understanding and awareness of their own perceptions and helps firms to recover quickly from difficult situations, and that entrepreneurial resilience is improved. Therefore we entrepreneurial resilience between entrepreneurial metacognition and subjective well-being its mediating role, hypotheses H5a and H5b are supported.

5.2 Theoretical and Practical Contribution

5.2.1 Theoretical contributions

1. Existing research on the analysis of antecedent variables of entrepreneurs' subjective well-being mainly starts from the three major aspects of individual characteristics and motivation, social network and work characteristics, this research elaborates the antecedents of entrepreneurs' subjective well-being from the perspective of metacognition, and finds that entrepreneurial metacognition positively affects subjective well-being through empirical research, enriching the research on the antecedent variables of entrepreneurs' subjective well-being.
2. This research constructs the research line of "entrepreneurial metacognition - entrepreneurial resilience - subjective well-being", and through empirical research, it is found that entrepreneurial metacognition plays a role in subjective well-being through entrepreneurial resilience, which enriches the research on the formation mechanism of entrepreneurial subjective well-being.

5.2.2 Practical Contributions

1.Schools should enhance entrepreneurial metacognition through entrepreneurship education and training

Entrepreneurship education and training should focus on developing entrepreneurs' metacognitive skills, including the ability to understand, plan, monitor and evaluate entrepreneurial tasks. Through systematic learning and practice, entrepreneurs can be helped to better recognize and manage their cognitive processes, thereby improving entrepreneurial success and subjective well-being.

2.Governments should formulate relevant policies to support entrepreneurship

Governments and relevant departments should formulate and implement policies to support entrepreneurship, including financial support, tax incentives and entrepreneurship training. These policies can provide entrepreneurs with the necessary resources and safeguards to enhance their entrepreneurial self-efficacy, thereby improving their subjective well-being.

Establish a comprehensive social support system, including business incubators, business parks and industry associations, to provide multifaceted support for entrepreneurs. These support systems can provide entrepreneurial guidance, resource matching, psychological counseling and other services to help entrepreneurs better cope with the challenges of the entrepreneurial process.

3.Multiple forces working together to optimize the entrepreneurial environment

Multi-party forces build a good entrepreneurial ecosystem, including the participation of the government, enterprises, universities, research institutions and other parties. Through resource sharing, information exchange, cooperation and innovation, it provides entrepreneurs with all-round support and enhances their sense of entrepreneurial self-efficacy and subjective well-being.

Communities can play an important role in providing entrepreneurs with multifaceted support by organizing entrepreneurial activities, providing entrepreneurial venues and

establishing entrepreneurial communities. Community support not only helps entrepreneurs to obtain the necessary resources in the entrepreneurial process, but also enhances their sense of social belonging and subjective well-being.

4. Society should emphasize mental health education and services

In entrepreneurship education and enterprise training, mental health education should be strengthened to help entrepreneurs understand and manage their own emotions, and timely psychological interventions should be provided for entrepreneurs facing greater psychological pressure. Through professional psychological counseling and treatment, we can help them alleviate psychological pressure and restore psychological health to improve the psychological quality of entrepreneurs, reduce the psychological pressure in the process of entrepreneurship, and then enhance the subjective sense of well-being. Entrepreneurial metacognition, entrepreneurial resilience, social support and entrepreneurial self-efficacy have significant impacts on entrepreneurs' subjective well-being. By improving entrepreneurial metacognition, enhancing entrepreneurial resilience, providing social support and strengthening entrepreneurial self-efficacy, entrepreneurs' subjective well-being can be effectively enhanced, thus improving entrepreneurial success and business performance. Enterprises and governments should work together to build a good entrepreneurial ecosystem, provide entrepreneurs with multifaceted support, and promote entrepreneurs' overall development.

5.3 Limitations and Future Research Directions

There are some limitations of this research, which are listed below:

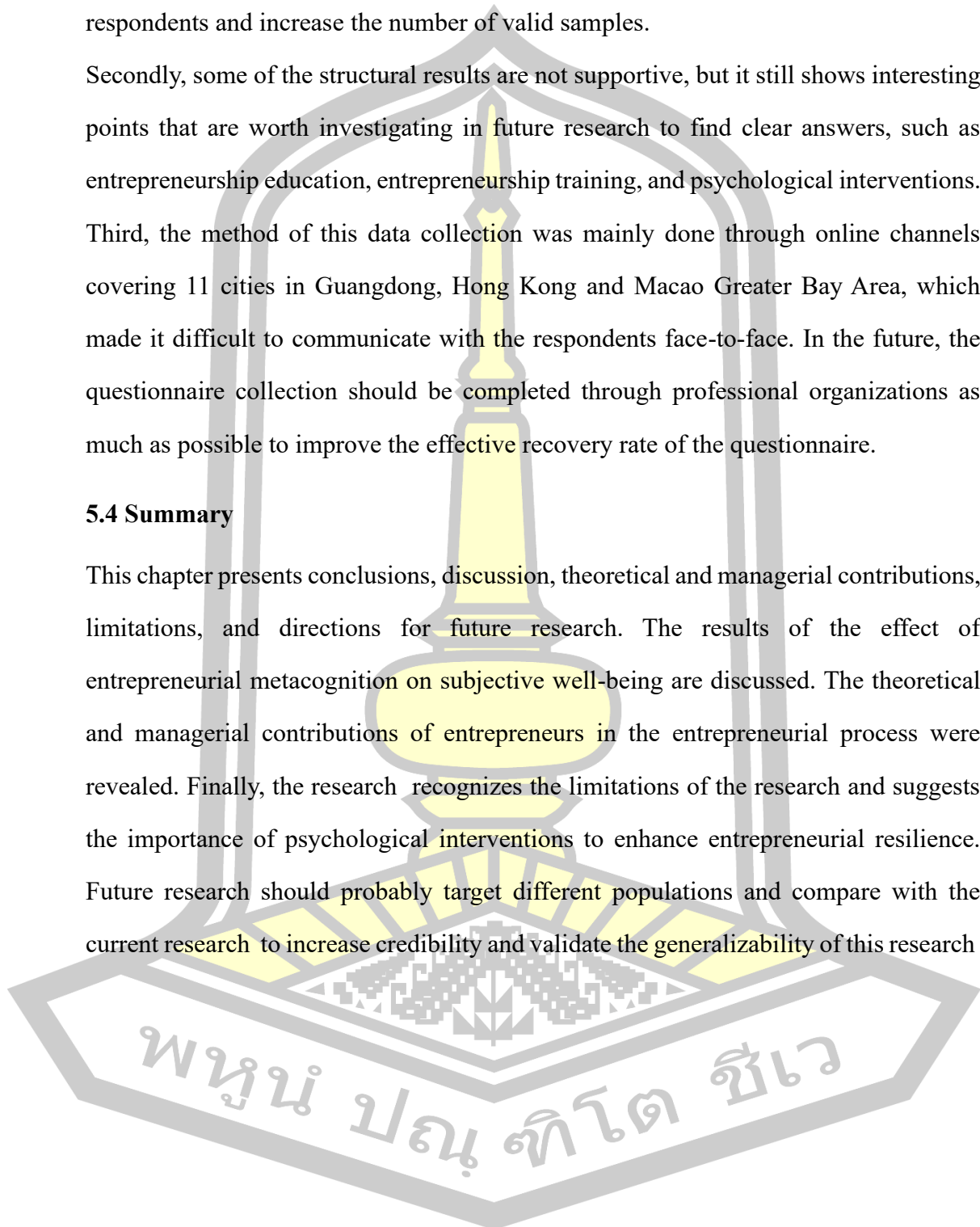
First of all, this research is based on entrepreneurs in Guangdong, Hong Kong and Macao Greater Bay Area of China as respondents, the number of questionnaires recovered is 303, which is not enough to represent all entrepreneurs, especially by the influence of income level, education level, stress level, work-life balance level, the

empirical results may change, so future research can expand the scope of the respondents and increase the number of valid samples.

Secondly, some of the structural results are not supportive, but it still shows interesting points that are worth investigating in future research to find clear answers, such as entrepreneurship education, entrepreneurship training, and psychological interventions. Third, the method of this data collection was mainly done through online channels covering 11 cities in Guangdong, Hong Kong and Macao Greater Bay Area, which made it difficult to communicate with the respondents face-to-face. In the future, the questionnaire collection should be completed through professional organizations as much as possible to improve the effective recovery rate of the questionnaire.

5.4 Summary

This chapter presents conclusions, discussion, theoretical and managerial contributions, limitations, and directions for future research. The results of the effect of entrepreneurial metacognition on subjective well-being are discussed. The theoretical and managerial contributions of entrepreneurs in the entrepreneurial process were revealed. Finally, the research recognizes the limitations of the research and suggests the importance of psychological interventions to enhance entrepreneurial resilience. Future research should probably target different populations and compare with the current research to increase credibility and validate the generalizability of this research.





APPENDIX

Questionnaire on the Subjective Well-Being of Entrepreneurs

Dear entrepreneurs,

We are the school's academic research team on entrepreneurship. Thank you for taking time out of your busy schedule to complete this questionnaire. The purpose of this survey is to deeply study the subjective well-being of entrepreneurs and its influencing factors. Please be assured that anonymity is guaranteed for this survey in accordance with the academic research protocol, ensuring that your responses are confidential.

Please provide your honest feedback when filling out the questionnaire.

Thank you for your valuable participation!

Part I Main Questions

Entrepreneurial Metacognitive Knowledge

Please indicate your level of agreement with the following statements, reflecting your sincere thoughts and feelings. The more you move towards the right, the greater your agreement is understood to be. Your responses should be based solely on your own perspectives, without the need to consult or consider the opinions of others.

	Strongly Disagree	←————→			Strongly Agree
1.I think of several ways to solve the problem, and then choose the best way.	1	2	3	4	5
2.Before I begin, I will challenge my assumptions about the task	1	2	3	4	5
3..I think about how others will react to my behavior.	1	2	3	4	5
4.I find myself automatically adopting strategies that have worked well in the past.	1	2	3	4	5
5.I perform best when I already understand the task.	1	2	3	4	5
6.I create my own examples to make the information more meaningful.	1	2	3	4	5
7.I try to use strategies that have worked well in the past.	1	2	3	4	5
8.Before I begin, I will ask myself some questions about this task.	1	2	3	4	5
9.I try to translate the new information into my own words	1	2	3	4	5
10.I try to break the problem down into smaller parts.	1	2	3	4	5
11.I am concerned about the meaning and significance of the new information.	1	2	3	4	5

Entrepreneurial Metacognitive Experience

Presented here are descriptions of various behaviors. Kindly indicate your degree of alignment with each statement, grounded in your authentic thoughts and emotions. The more you incline towards the right, the more often these thoughts or behaviors are presumed to occur in your experience. Your selections should be made independently, without seeking or being influenced by the opinions of others.

Strongly
Disagree ←————→ Strongly
Agree

12. Before starting a task, I will think about what I really need to accomplish.	1	2	3	4	5
13. I use different strategies according to the situation.	1	2	3	4	5
14. I arrange my time best to achieve my goal.	1	2	3	4	5
15. I am good at organizing information.	1	2	3	4	5
16. I know what kind of information is most important when facing problems.	1	2	3	4	5
17. I consciously focused on important information.	1	2	3	4	5
18. My "intuition" tells me when a particular strategy I use is most effective.	1	2	3	4	5
19. I rely on intuition to make strategies.	1	2	3	4	5

Entrepreneurial Resilience

Please assess your level of confidence in relation to the following descriptions, drawing on your genuine thoughts and feelings. The degree of confidence increases as you move towards the right. Your choices should be based solely on your personal convictions, without the necessity of consulting the opinions of others.

Strongly
Strongly
Disagree
Agree

20. I actively look for ways to replace the losses I account in life.	1	2	3	4	5
21. I believe that I can grow in positive ways by dealing with difficult situations.	1	2	3	4	5
22. I look for creative ways to alter difficult situations.	1	2	3	4	5
23. Regardless of what happens to me, I believe I can control my reaction to it.	1	2	3	4	5

Subjective well-being

Please indicate your level of agreement with the following statements, reflecting your sincere thoughts and feelings. The more you move towards the right, the greater your agreement is understood to be. Your responses should be based solely on your own perspectives, without the need to consult or consider the opinions of others.

Strongly
Strongly
Disagree
Agree

24. In most ways, my life is close to my ideal.	1	2	3	4	5
25. The conditions of my life are excellent.	1	2	3	4	5
26. I am satisfied with my life.	1	2	3	4	5
27. So far I have gotten the important things I want in life.	1	2	3	4	5
28. If I could live my life over, I would change almost nothing.	1	2	3	4	5

Entrepreneurial Fear of Failure

Below are various descriptions of entrepreneurial fear of failure. Kindly rate your level of agreement with each statement according to your genuine beliefs and experiences. The more you move towards the right, the more frequently you are likely to engage in or experience these thoughts or behaviors. Your responses should be independent of external opinions and reflect your individual perspective alone.

	Strongly Disagree ←————→ Strongly Agree				
....of not getting enough funding to move the company forward	1	2	3	4	5
....of not being able to finance the business	1	2	3	4	5
....of not being able to get the required funding for the business	1	2	3	4	5
...that no one will be interested in the product/service	1	2	3	4	5
33....that this is not a valuable business idea	1	2	3	4	5
34....that there is no need for our product/service out there	1	2	3	4	5
35....of other people's expectations of me	1	2	3	4	5
36....of disappointing the people who are important to me	1	2	3	4	5
37....of losing the trust of people who are important to me	1	2	3	4	5
38....that running the business is taking my time away from other activities	1	2	3	4	5
39....of missing important events of my life because of my business	1	2	3	4	5
40....of not being able to spend enough time with my family and friends	1	2	3	4	5

41....of not being able to manage people effectively	1	2	3	4	5
42....of not being able to manage the business effectively	1	2	3	4	5
43.....of not being able to fulfil all the roles that this job requires	1	2	3	4	5
44.....of running out of money	1	2	3	4	5
45.....of losing all my savings	1	2	3	4	5
46.....of losing all I have invested in the business/business activities	1	2	3	4	5
Over the past few months, I have been afraid of the organization's ability to					
47....meet client expectations	1	2	3	4	5
48....overcome technical challenges	1	2	3	4	5
49....deliver upon promises	1	2	3	4	5

Social support

You will find descriptions of various helping relationships.. Kindly indicate your degree of agreement with each statement based on your genuine beliefs or experiences. The more you move towards the right, the stronger your agreement is considered to be. Your responses should reflect your own perspectives, independent of any external influences or opinions.

	Strongly Disagree ←————→ Strongly Agree				
My family members have always thought I should choose an entrepreneurial career.	1	2	3	4	5
My friends think that I should choose an entrepreneurial career.	1	2	3	4	5
People who are important for me think that I should choose an entrepreneurial career.	1	2	3	4	5

Entrepreneurial self-efficacy

Please indicate your level of agreement with the following statements, reflecting your sincere thoughts and feelings. The more you move towards the right, the greater your

agreement is understood to be. Your responses should be based solely on your own perspectives, without the need to consult or consider the opinions of others.

Strongly
Strongly
Disagree
Agree

As an entrepreneur, I have confidence in identifying new business opportunities.	1	2	3	4	5
As an entrepreneur, I have confidence to create new products or services;	1	2	3	4	5
As an entrepreneur, I have the confidence to think creatively;	1	2	3	4	5
As an entrepreneur, I have the the confidence to put an entrepreneurial idea into business law.	1	2	3	4	5

Part II Basic Information

57. Your gender

A.male; B.female

58. Industry type of your company

A. Agriculture, forestry, animal husbandry and fishery

B. Mining industry

C. Manufacturing

D. Production and supply of electricity, heat, gas and water

E. Construction industry

F. Wholesale and retail trade

G. Transportation, warehousing and postal services

H. Accommodation and catering

I. Information transmission, software and information technology services

J. Finance

K. Real estate

L. Leasing and business services

M. Scientific research and technical services

N. Water, environmental and public utilities management

O. Residential services, repairs and other services

P. Education

Q. Health and social work

R. Culture, sports and entertainment

S. Public administration, social security and social organization

T. International organizations

59. What is your stress level in the process of starting a business

A very small B. small C. average D. large E. Very large

60. What is your annual income?

A. less than 100,000 B. 100,000-300,000 C. 300,000-500,000 D. 500,000-700,000 E. More than 700,000

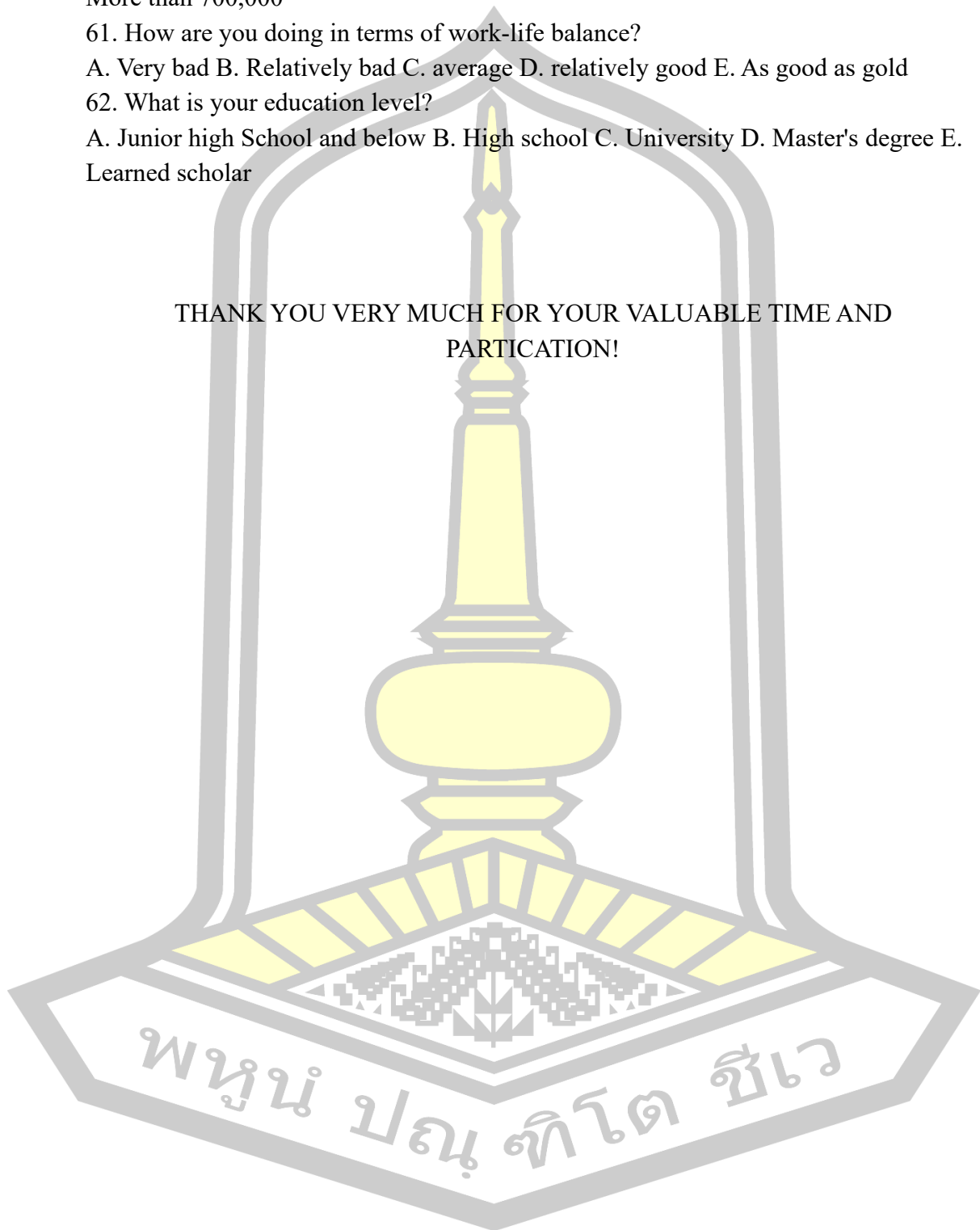
61. How are you doing in terms of work-life balance?

A. Very bad B. Relatively bad C. average D. relatively good E. As good as gold

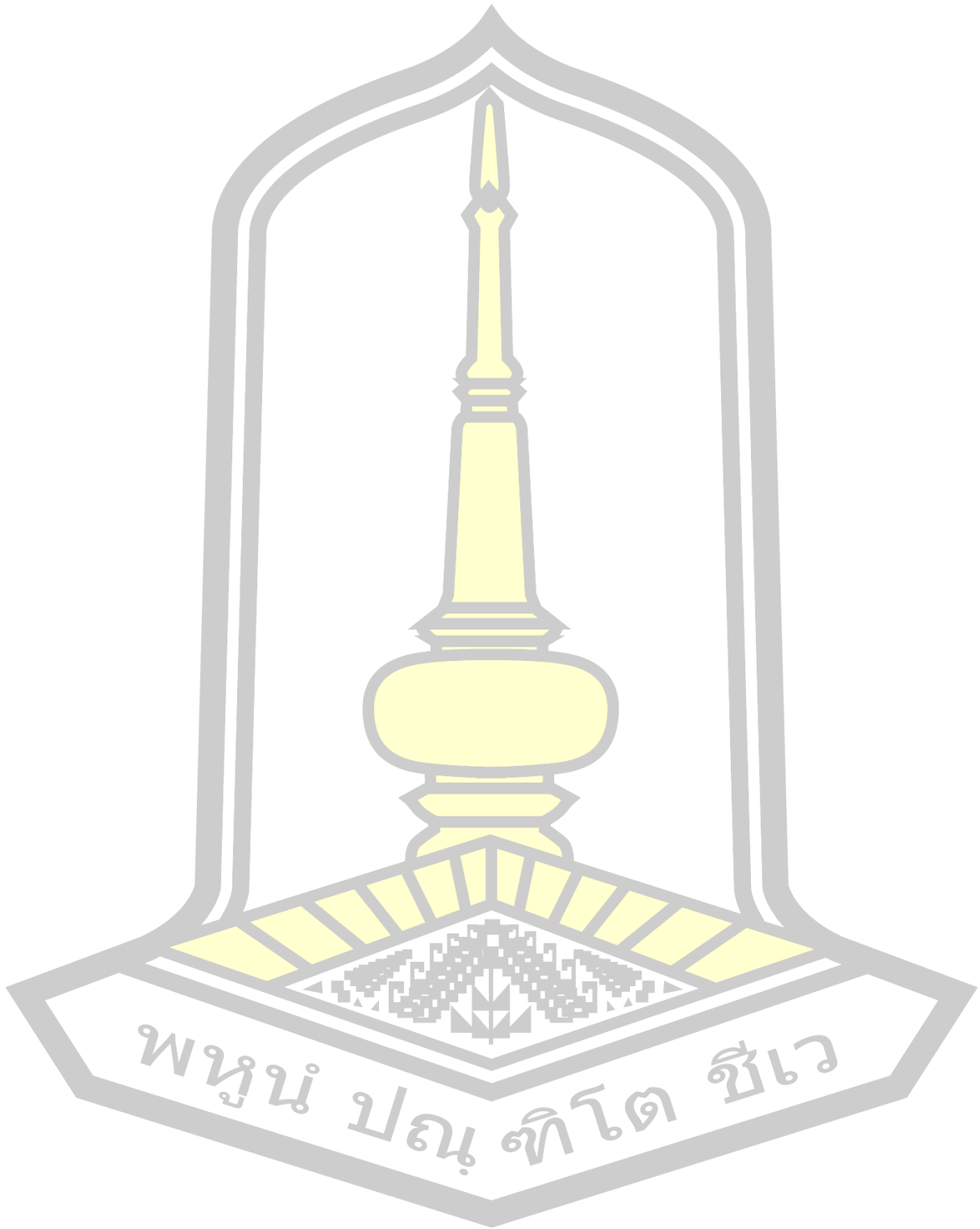
62. What is your education level?

A. Junior high School and below B. High school C. University D. Master's degree E. Learned scholar

THANK YOU VERY MUCH FOR YOUR VALUABLE TIME AND
PARTICIPATION!



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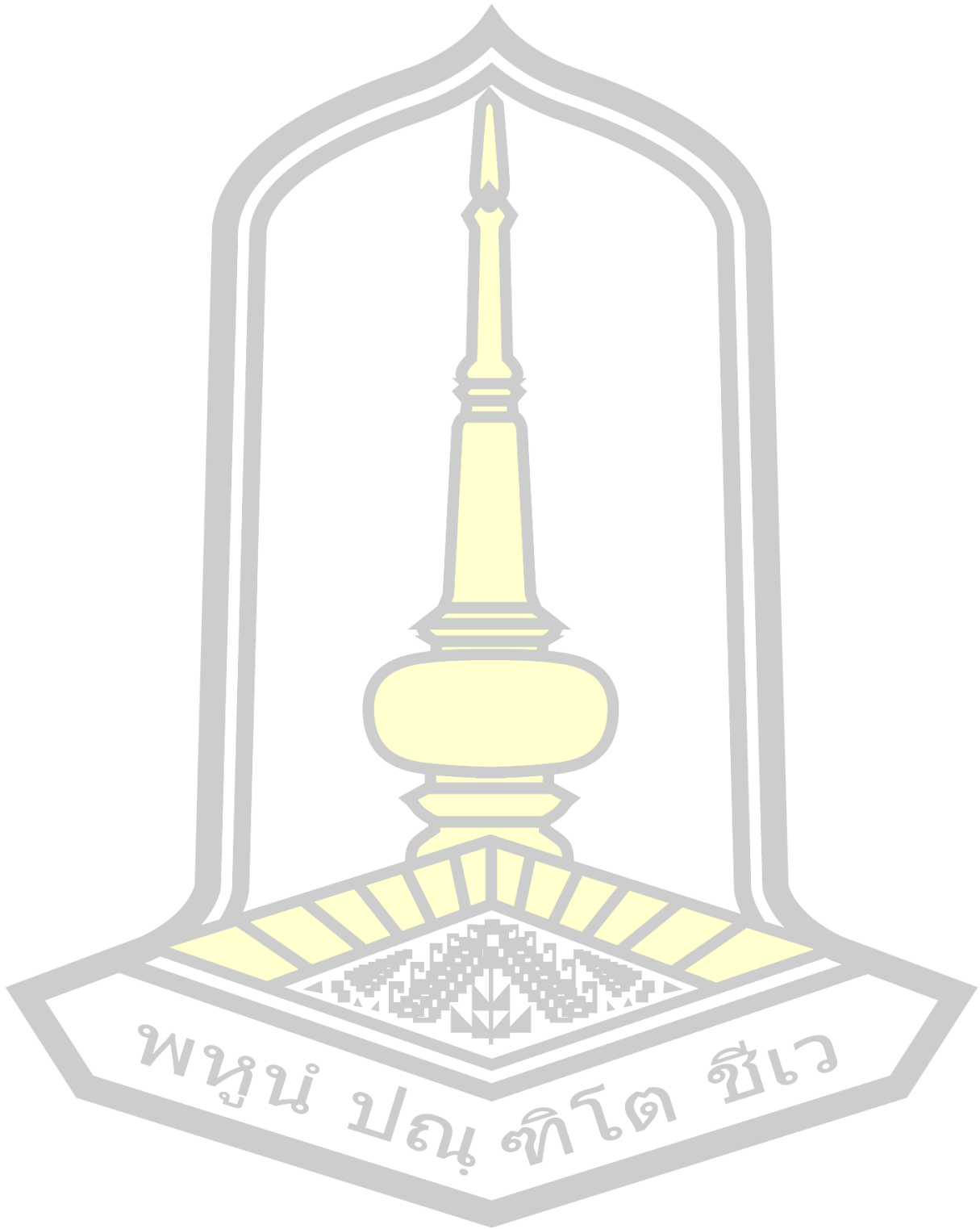
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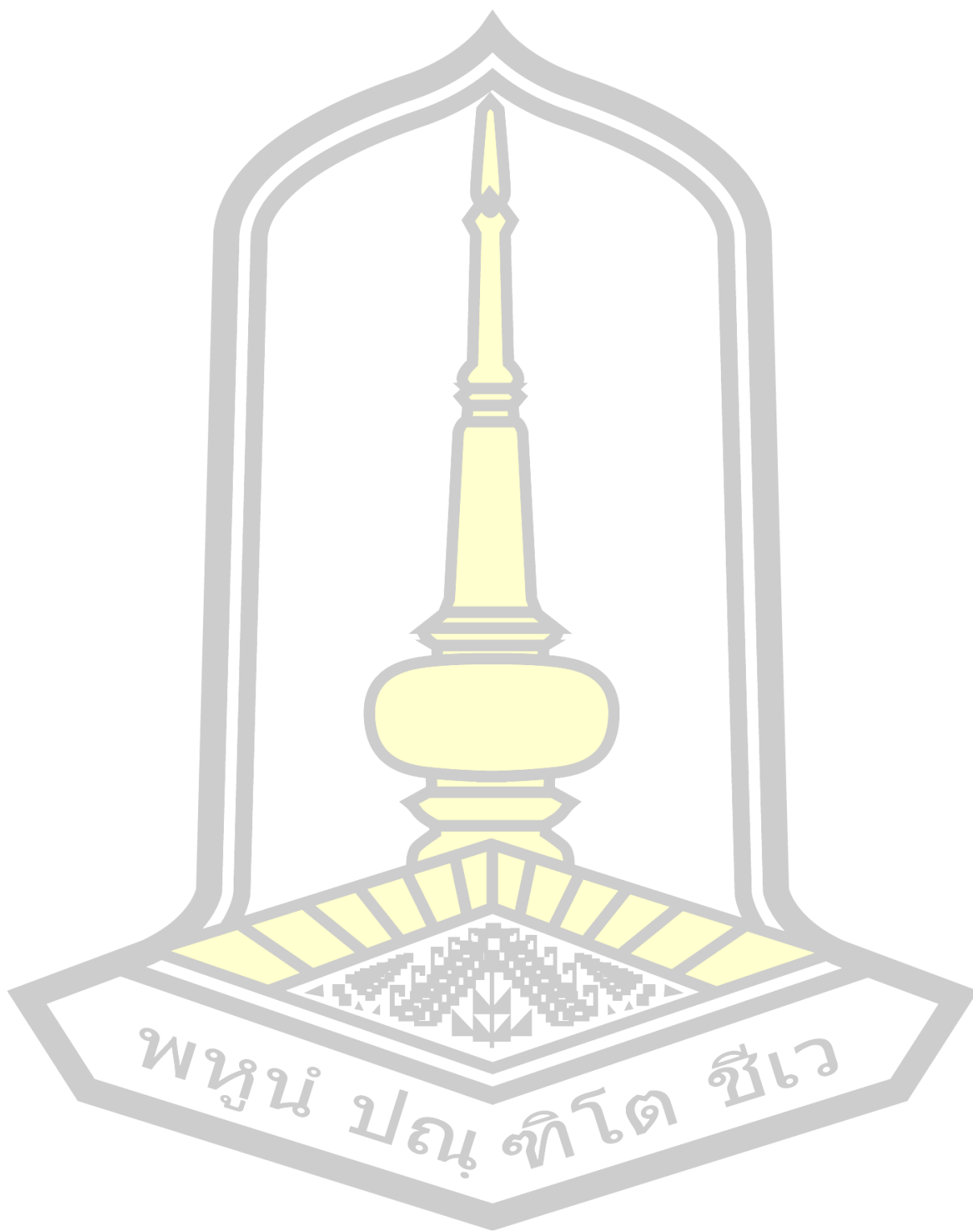
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