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## A Positive Psychology Perspective on Chinese EFL Students' Well-Being, Language Mindset, and English Performance

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A Positive Psychology Perspective on Chinese EFL Students'  
Well-Being, Language Mindset, and English Performance

A Dissertation by

Qian Wei

Chapman University

Orange, CA

Donna Ford Attallah College of Educational Studies

Submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Education

May 2024

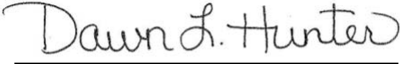
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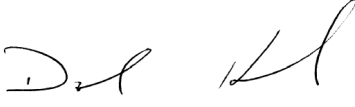
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The dissertation of Qian Wei is approved.

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Oliver Lopez, Ph.D.

April 2024

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Well-Being, Language Mindset, and English Performance

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## **DEDICATION**

I dedicate my dissertation to my cherished family for their unwavering support and trust, which has propelled me forward.

To my parents, you have endowed me with the talent of learning a new language and your guidance has instilled in me the virtues of diligence and perseverance, laying the foundation for boundless opportunities in my life.

To my in-laws, thank you for taking me as your daughter and backing me emotionally and financially, which have allowed me to immerse myself fully in my studies and research.

Above all, to my beloved husband, Vincent, you are my pillar of strength, voice of reason, confidant, and everything in my life; without you, I couldn't embark on this 4-year journey. More importantly, you've always seen my uniqueness and strengths, and your belief in me has empowered me to strive for excellence and has been the driving force behind all my accomplishments.

To each of you, I am deeply grateful for your unwavering love and encouragement. None of my achievements would have been possible without your steadfast support.

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I am also immensely grateful to my other committee members, Dr. Doug Havard and Dr. Oliver Lopez, for their expertise, insightful comments, and constructive criticism. Dr. Havard is the most conscientious, gentlemanly, and supportive scholar I have ever met. Whenever I encountered difficulties both in data analysis or in daily life, he would always assist me in overcoming challenges and help me get out of the trouble, and his conscientiousness, kindness, and unwavering support have left a lasting impression on me. Also, Dr. Lopez's patience and clarity in explaining complex concepts in data and statistics have been immensely helpful, especially at the end of our meetings when he would always make a "homework" list for me on

color stickers tailored to my queries to guide my further investigation, which have been a valuable tool for my further exploration.

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# ABSTRACT

A Positive Psychology Perspective on Chinese EFL Students'

Well-Being, Language Mindset, and English Performance

by Qian Wei

The primary purpose of this paper was to assess the well-being levels and language learning mindsets of English as a foreign language learners in Chinese higher vocational colleges; explore the relationship between well-being levels, growth language mindset (GLM), and English learning performance (i.e., College English Test [CET 4] scores); and compare specific differences in well-being levels, language growth mindset, and English performance (i.e., CET 4 scores) in demographic aspects (i.e., gender, hometown locales, family planning, and CET 4 times). A quantitative study among EFL students ( $n = 1,030$ ) was conducted to answer the research questions. Specifically, Spearman correlations were used to explore the relationship between well-being levels, GLM, and CET 4 scores. The Mann-Whitney U test and the Kruskal-Wallis test were applied to compare demographic differences. The research results indicated a strong positive correlation between well-being levels and GLM among Chinese higher vocational students ( $r = .589$ ). Moreover, weak positive correlations were confirmed between well-being levels, GLM, and CET 4 scores. Surprisingly, due to the influence of traditional Chinese thinking modes (e.g., Yin–Yang mindset, Zhong–Yong mindset), participants' negative emotions were positively correlated with the subdimensions of well-being profiles (i.e., positive emotions, engagement, relationships, meaning, and accomplishment) weakly; additionally, the perceived level of meaning in life and GLM displayed a strong positive correlation ( $r = .583$ ). Demographically, compared to their counterparts, women, only children, and participants from



urban areas outperformed in CET 4 scores significantly. The results suggested stakeholders could enhance students' English performance by improving their well-being levels and cultivating GLM overall. In addition, EFL teachers could focus on developing students' sense of meaning in life, shaping a GLM, and guiding students to adjust negative emotions in life rationally. Although female EFL learners had a significant advantage in English performance, English teachers should avoid perpetuating this mindset and refrain from amplifying gender differences. Furthermore, the clear benefits of only children and urban EFL learners in English performance reflected the imbalance in educational resource allocation. Thus, the family planning policy and disparity in urban–rural resources needed more attention from relevant government departments and policymakers.

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## LIST OF ABBREVIATIONS

<b><u>Abbreviation</u></b>	<b><u>Meaning</u></b>
ASB	Age Sensitivity Beliefs
CET	College English Test
EFL	English as Foreign Language
FLM	Fixed Language Mindset
GLB	General Language Intelligence Beliefs
GLM	Growth Language Mindset
HVE	Higher Vocational Education
L2	Second Language
L2B	Second Language Aptitude Belief
LMI	Language Mindsets Inventory
PERMA	Positive emotion, Engagement, Relationship, Meaning, Accomplishment

## LIST OF SYMBOLS

<u>Symbol</u>	<u>Meaning</u>
CI	Confidence interval
$df$	Degree of freedom
$M$	Mean
Md	Median
$n$	Sample size
$N$	Population size
$p$	p value
$r$	Correlation coefficient
$r^2$	Effect size
$SD$	Standard deviation
Sig.	Significance

# **CHAPTER 1. INTRODUCTION**

This study explored the well-being and language learning mindsets among English as foreign language (EFL) learners in a Chinese higher vocational education (HVE) university. This study examined the association between language competency, well-being, and English learning mindsets by measuring participants' well-being and English learning patterns at a private HVE institution. Chapter 1 includes the background of the study, statement of the research problem, purpose of the study, research questions, and significance of the study. Chapter 2 discusses the literature regarding the well-being and mindsets of students learning English as a second language. Chapter 3 describes the methodology and specific research methods used for this study. It also includes the study's research questions, strengths and contributions of survey methodology to psychological and linguistic research, participants, data collection, and data analysis used in this quantitative study. Chapter 4 explores the findings of the study. This dissertation concludes with Chapter 5, which discusses the relationships of the findings to the literature, implications of the findings, limitations of the study, and suggested areas for future research.

## **Background of the Study**

With a "short history" but a "long past" (Peterson, 2006, p. 4), positive psychology came under the spotlight when Martine Seligman became the president of the American Psychological Association in 1998 (Peterson, 2006; Seligman & Csikszentmihalyi, 2000). Prior to 1998, World War II propelled the development of psychology in the United States, leading to the widespread dissemination of psychological health and treatment among the U.S. populace; concurrently, it established the preeminent position of the United States in the global arena of psychology. Simultaneously, U.S. society underwent a process of psychologization (Lloyd, 2015).

Particularly noteworthy was the emergence of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders, which accelerated researchers' categorization of individuals as normal or abnormal (American Psychiatric Association, 2021). Moreover, with overwhelming research funds in the United States pouring into psychological research to support mental illness caused by World War II, more and more practitioners devoted themselves in psychiatry research based on the Diagnostic and Statistical Manual of Mental Disorders regarding clinical mental illness treatment, which gradually resulted in a grossly unbalanced discipline oriented around mental problems and illnesses and rooted a categorization method on psychological research (Maddux, 2009; Seligman, 1998). Moreover, the psychological research base gradually changed its focus and began exploring the enhancement of individual lives and human development (Seligman & Csikszentmihalyi, 2000). This shift resulted in the emergence of positive psychology and guided psychologists to modify their thinking to begin studying the goodness in humanity (Maddux, 2009; Sheldon & King, 2001). Thus, as a "scientific study of ordinary human strengths and virtues" (Sheldon & King, 2001, p. 216), positive psychology set a goal of helping people appreciate the beauty of human nature and thrive in their ordinary lives.

Revitalizing people as a whole resonated with many policies of pursuing national dreams (e.g., the American Dream, the Chinese Dream) around the world. Occupying a central position in the national ethos, the American Dream inspires individuals who exert diligence to attain a superior standard of living compared to their predecessors (Wolak & Peterson, 2020). The Chinese Dream seeks "to have economic prosperity, national renewal and people's well-being [and] is about cooperation, development, peace and win-win, and it is connected to the American Dream and the beautiful dreams people in other countries may have" (Mahoney, 2014, p. 27). The Chinese Dream is regarded as a mission and a main strategic thought for China's future (Z.

Wang, 2014), and resonates with positive psychology's advocacy of happiness and thriving lives (Kuhn, 2013). In addition, at the China Youth Conference, President Xi emphasized young people should have the courage to pursue their dreams; by demonstrating resilience and a determination through grounded effort, every young person could influence China's future, rejuvenate the nation, and achieve the Chinese Dream (Xi, 2022). Coincidentally, what has been advocated for in the Chinese Dream aligns with the core of positive psychology by prioritizing an individual's engagement and achievement while encouraging positive emotions, meanings, and relationships. These attributes foster national innovation, harmony, and the rejuvenation and prosperity of the nation as a whole (Kuhn, 2013).

To rejuvenate positive psychology in the Chinese context, this study was guided by a combination of well-being (i.e., PERMA) theory (Seligman, 2012) and mindset (i.e., implicit) theory (Dweck, 2000), specifically language learning mindsets (Mercer & Ryan, 2009). As language researchers, language learners' performances in living and learning should be focused. With the development of positive psychology, researchers began to focus on whether people were fulfilling their potential, pursuing what interested them, and living a fulfilling life (Lopez & Snyder, 2011). Having built the authentic happiness theory with the foci of happiness and life satisfaction, Seligman (2012) expanded the theory into the well-being construct theory, consisting of five measurable elements, each of which contributes to well-being but cannot be defined separately as well-being. These five elements are "positive emotion, engagement, meaning, positive relationships, and accomplishment" (Seligman, 2012, p. 35), referred to by the initials PERMA.

Besides a positive performance evaluation in an individual's life, positive thinking could also be investigated. Given varying perspectives on an individual's own self-evaluation may

impact their ideas, feelings, and actions (Dweck, 2000), mindset (i.e., implicit) theories were introduced by Dweck and Leggett (1988) and Dweck (2007, 2012). These theories propose two types of mindsets individuals may have regarding their intelligence: growth mindsets and fixed mindsets. People with fixed mindsets believe intelligence is inherently fixed and cannot be changed, and people with growth mindsets believe mindsets can be improved and enhanced through acquired efforts (Dweck, 2000).

Although the decade prior to this research witnessed an increasing momentum of positive psychology application in language learning, there is still a paucity of research on this topic. A search of the Web of Science for the keywords “positive psychology” and “language learning” (see Figure 1) revealed the application of positive psychology in language learning demonstrated a steady growth pattern from 2012–2022. The most significant growth pattern occurred in 2022, indicating positive psychology has had an ever-increasing influence on language learners’ development and may also play a significant role in the future. However, during this period of time, the positive psychology movement in China was underdeveloped, and a change occurred in this situation around 2020. When the key words of “vocation” or “vocational” were included, no research was found; thus, no positive psychology research was applied to EFL learners in China’s vocational universities in this data set.

**Figure 1**

*Distribution of Positive Psychology Publications in the Web of Science*



### **Statement of the Problem**

The qualities promoted in positive psychology align with the qualities advocated for in the pursuit of the Chinese Dream (Gillham & Seligman, 1999). With the emergence of the COVID-19 global pandemic, new challenges emerged, which have influenced the Chinese Dream. Pervasive mental health problems (e.g., anxiety, depression) became a major concern (Vindegaard & Benros, 2020). The emergence of the pandemic affected not only the youth of China, but also children and adolescents worldwide. More children and youth experienced anxiety, depression, and posttraumatic symptoms due to the emergence of the pandemic (Marques de Miranda et al., 2020). A meta-analysis covering both Chinese and international databases ( $n = 1,441,828$ ) found 34% of global college students experienced depression, 32% experienced anxiety, and 33% experienced sleep disorders in January 2021, revealing a challenging educational environment (J. Deng et al., 2021).

Specifically, acute stress, anxiety, and depressive symptoms were prevalent psychological problems among Chinese college students during the emergence of the COVID-19 global pandemic (Y. Li et al., 2021). Even worse, the emergency online teaching among Chinese universities deteriorated English learning and teaching by increasing English learners' language anxiety (C. Li & Dewaele, 2021). Furthermore, during the pandemic, compared with students from comprehensive universities, Chinese HVE college students' anxiety greatly increased, and Fan and Liu (2022) identified a strong negative correlation between their anxiety level and mental well-being ( $\beta = -.143, p < .001$ ).

In addition to the deterioration of external conditions, Chinese higher vocational students have other inherent disadvantages. Being rejected by the general education system due to their failure in the college entrance examination, higher vocational university students in one study were labeled as having “poor discipline and learning habits, lack of enthusiasm for learning, poor self-control ability, disobedience to the school and teachers' management” (E. Xue & Li, 2022, pp. 4–5). These students have also received little social recognition—and even discrimination—in the job market (Ling et al., 2023; E. Xue & Li, 2022). Typically residing from lower socioeconomic status families with challenging economic backgrounds, vocational graduates also tend to be more anxious about academic performance and future jobs than their peers attending comprehensive universities (Y. Zhang, 2019). Under such circumstances, rejuvenating positive psychology is a necessity in the Chinese higher vocational circle because it could contribute to cultivating positive strengths and virtues (e.g., positive emotions), releasing stress, burnout, anxiety, and depression (Meyers et al., 2013); leading to positive personal skills and abundant social resources; and combating difficulties under emergent circumstances (Fredrickson, 2001; Sheldon & King, 2001). It could also improve well-being, facilitate positive



mindsets, and promote students' academic performance (Dweck, 2007; Peterson, 2006; Seligman et al., 2009).

Positive psychology, complementing the pursuit of the Chinese Dream, could be an elixir for Chinese higher vocational students, and a compelling hypothesis regarding the potential benefits of integrating positive psychology into the educational framework for Chinese higher vocational students. First, positive psychology would prompt inquiry into the current prevalence and impact of stigma and stress among Chinese higher vocational students, including the factors contributing to these challenges and their implications for student well-being and academic achievement. Second, it would call for an examination of the existing approaches and interventions aimed at addressing stigma and stress in the HVE system in China, evaluating their effectiveness and identifying potential gaps or limitations. Third, it would invite investigation into the specific mechanisms through which positive psychology interventions may alleviate stigma and stress among higher vocational students, plus their potential effects on students' overall well-being, growth mindsets, and academic performance. Finally, it raises questions about the cultural and contextual factors that may influence the implementation and efficacy of positive psychology practices in the Chinese HVE context, considering the unique sociocultural norms, educational practices, and aspirations associated with the Chinese Dream.

### **Definitions of Key Terms**

The following definitions are provided to clarify the related concepts and situations on the topic.

*Positive psychology:* Positive psychology is a healing philosophy calling for practitioners to shift from solving people's problems to understanding subjective experiences, and from focusing on people's deficiencies to developing their strengths by

assisting them to recognize their virtues and lead a more self-organized, self-directed, and rewarding life (Seligman & Csikszentmihalyi, 2000).

*Well-being:* Well-being is divided into subjective well-being (SWB) and psychological well-being (PWB) regarding positive interpersonal relationships and self-acceptance, personal growth, life goals, and meaning, and presents flourishing and languishing to differentiate mental health levels further (Keyes et al., 2002).

*Language mindsets:* Language mindsets are divided into two types: a fixed language mindset (FLM) and a growth language mindset (GLM). Fixed language learners refer to a group of students who think successful language learners have innate learning abilities and are stable; growth language learners believe linguistic skills can be developed with commitment and effort (Mercer & Ryan, 2009).

*Language Mindsets Inventory:* The Language Mindsets Inventory (LMI) has three parts: (a) general language intelligence beliefs (GLB), resonating with Dweck's (2000) mindset theory; (b) second language aptitude beliefs (L2B), referring to language learning abilities; and (c) age sensitivity beliefs (ASB) about language learning, meaning whether the language learning ability is fixed considering age, to examine language learners' linguistic thinking patterns (Lou & Noels, 2017).

### **Purpose of the Study**

Although Figure 1 indicated a thriving tendency of positive psychology in language education, no result was achieved when the key words of Chinese vocational universities were added to the search; namely, there was a gap of positive psychology research in Chinese vocational English learning. Therefore, the purpose of this quantitative study was to add to the

body of literature regarding Chinese vocational EFL learners, and determine if there was a relationship between well-being, language mindset, and student performance.

Specifically, this study aimed to seek foundational data regarding EFL students' well-being levels in a higher vocational university, language mindsets, and English performance. The study was also interested in investigating potential correlations between specific variables related to well-being (i.e., positive emotions, engagement, relationship, meaning, accomplishment, overall well-being, negative emotion, and physical health), EFL learners' language mindsets (i.e., growth or fixed) in terms of their beliefs (i.e., GLB, L2B, and ASB), and demographics (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and College English Test [CET] 4 times), and CET 4 scores.

### **Research Questions**

The following research questions guided this study:

RQ1: What, if any, is the relationship between EFL students' well-being level, language mindsets, and CET 4 scores?

RQ2: What, if any, is the relationship between EFL students' well-being profiles (i.e., positive emotions, engagement, relationship, meaning, accomplishment, negative emotion, and physical health), language mindsets (i.e., growth or fixed) in terms of their beliefs (i.e., general language intelligence beliefs, second language aptitude beliefs, and age sensitivity beliefs about language learning), and CET 4 scores?

RQ3: What, if any, is the relationship between well-being level and CET 4 scores among three different composite language mindset groups?

RQ4: What are the possible demographic differences (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times) in terms of CET 4 scores, well-being scores, and language mindset scores?

### **Significance of the Study**

This study contributed to the limited existing literature on the well-being of HVE students in China by providing information about the well-being of higher vocational students and their English performance (Petrova & Schwartz, 2017). In addition, the study may inform higher education managers and policymakers, providing a new perspective for university administrators, policymakers, and teachers to adjust and modify teaching policies and methods accordingly to support students' well-being and language mindsets, and to make appropriate teaching interventions if necessary.

Furthermore, this well-being study on Chinese youth was essential. China defines youth as people aged 14–35, encompassing adolescents. This group generally heralds vitality, hope, and responsibility (B.-B. Chen et al., 2017; F. Liu, 2011; Xi, 2006). This age group included approximately 450 million people in 2015, representing 33% of the entire population of China (B.-B. Chen et al., 2017; X. Deng, 2015). Moreover, with its highly developed economy and unparalleled blending of Western cultures and Chinese traditions, modern China has increasingly demanded Chinese youth be more competitive (B.-B. Chen & Santo, 2016). From a result-oriented perspective, this well-being study could bring about positive changes to Chinese youth in terms of competence, confidence, character, connection, and caring. Competence refers to the ability to adapt in a specific domain. Confidence represents an overall positive self-perception, character represents respect for social and cultural rules, connection represents positive relationships with people and institutions, and caring represents a sense of social care and

empathy for others (B.-B. Chen et al., 2017; Lerner et al., 2005). In addition, well-being is related to five other elements that are essential for today's youth in China. These elements include (a) positive social competence that enhances the self-confidence of young people, (b) leadership and engagement, (c) a sense of morality, (d) relationships with society and others, and (e) empathy for society and people (B.-B. Chen et al., 2017). Therefore, this well-being study among Chinese youth is both meaningful and consequential for modern China.

### **Chapter Summary**

This chapter outlined the purpose of the study and the psychological threats and stigma. It also presented the research questions and significance of this research. Specifically, to alleviate anxiety and an inherent stigma mentality among Chinese higher vocational college students, this study, grounded in positive psychology, focused on assessing the well-being levels and language learning mindsets of English learners at one higher vocational college in postpandemic China. Simultaneously, it explored the relationships between the well-being levels, language learning mindsets, and English performance (i.e., CET 4 scores) of EFL learners. With this foundational information regarding the present level of these areas, it was hoped this study would serve as a starting point for integrating the theories of positive psychology into English classrooms in the postpandemic era, enhancing students' overall well-being, fostering a growth-oriented language mindset, and improving English performance in the future. To gain a thorough understanding of the existing research foundation in this field, Chapter 2 presents the research contributions of Western and Chinese researchers in the domains of positive psychology and growth mindset, which provide the foundation for this study.

## **CHAPTER 2. REVIEW OF LITERATURE**

The research on well-being, growth language mindset (GLM), and English performance (i.e., College English Test [CET] 4 scores) among Chinese higher vocational education (HVE) English as a foreign language (EFL) students are discussed in this chapter. To understand these issues fully, it is necessary to describe the development and application of positive psychology, including happiness and well-being in both Western and Eastern contexts, with a special focus on China. Theoretical frameworks on well-being and language mindset, and related studies on well-being in language education, are also presented. Due to a 5,000-year history and profound impact on the well-being of Chinese people (Kramer et al., 2002; Marsella & Yamada, 2000; Swartz, 1999; Zeng et al., 2019), Chinese culture-based thinking modes are also presented in this chapter. In addition, the instruments and corresponding applications applied in this study are outlined in a detailed manner. Further, crucial variables in the study (i.e., well-being, emotions, meaning, and growth mindset) are addressed. Additional factors that may influence language learners in vocational colleges in China (i.e., child policy and education in China, rural and urban education in China, and the CET) are explained.

### **Positive Psychology in a Western Context**

Prior to World War II, psychology had three primary goals: (a) treating mental illnesses, (b) improving life quality, and (c) developing highly qualified individuals (Seligman & Csikszentmihalyi, 2000). Nevertheless, after World War II, with the influx of government funds, mental illness treatment dominated while the other two goals were ignored (Maddux, 2009). In 1920s, psychopathology has evolved by ignoring psychologists' focus on health and personal growth (R. M. Ryan & Deci, 2001). Since the 1960s, psychological research has gradually moved toward prevention research such as growth research (Deci, 2012), well-being research

(Diener, 1984), and mental health research (Cowen, 1991). Subsequently, some practitioners in psychology realized the detour and reiterated the original intention of psychology research: the focus on strengths by helping young people build a culture of health, resilience, and strength to buffer against challenges and mental health issues. Thus, distressed people could be distanced from agony or anguish via seeking more happiness and well-being, leading them to live a better life in the long run (Burns, 2017). With the continuous attention of the U.S. public and scientific psychologists to mental growth and mental health, the call for the human potential movement gradually emerged, which created the conditions for the emergence of positive psychology (Seligman & Csikszentmihalyi, 2000).

The proposition of the positive psychology was quite reasonable because the inherent psychology research of categorizing people and tagging them as patients does not cure them or contribute to an optimistic attitude; instead, these people may feel life is void and meaningless (Seligman & Csikszentmihalyi, 2000). In 1952, a U.S. pastor, Norman Vincent Peale, published a book titled *The Power of Positive Thinking*, which shared a similar philosophical system with the positive psychology proposed by Seligman (Wielander, 2018). However, it was not until 2000 that positive psychology became a subfield of psychology when Seligman and Csikszentmihalyi (2000) introduced a healing philosophy to conventional psychology after evaluating 16 seminal articles on the subject. Their work called for practitioners to shift from solving problems to understanding subjective experiences, and from focusing on deficiencies in people to developing their strengths. Since then, positive psychology officially came into being to help people form a new positive perspective and boost their morale by assisting them to recognize their strengths and virtues and lead a more self-organized, self-directed, and rewarding life (Seligman & Csikszentmihalyi, 2000).

## **Evolution of Positive Psychology**

Undoubtedly, Seligman and Csikszentmihalyi (2000) set a tone for positive psychology practice; that is, positive psychologists, unlike negativity-oriented psychopathologists, should commit to building positive thoughts and helping ordinary people thrive and flourish by adapting “what is best in the scientific method to the unique problems that human behavior presents in all its complexity” (p. 4). As positive psychology evolved, its scope expanded horizontally, delineated by three core pillars: “positive subjective experience, positive individual traits, and positive institutions” (Seligman & Csikszentmihalyi, 2000, p. 5). More specifically, with the aim of understanding “what makes life worth living” (Seligman & Csikszentmihalyi, 2000, p. 280), Seligman and Csikszentmihalyi presented three levels for positive psychology research (i.e., subjective, individual, and collective). The subjective level refers to “well-being, hope, flow, and happiness;” the individual level refers to “positive personal characteristics;” and the group level refers to the “civic virtues and the institutions” (Seligman & Csikszentmihalyi, 2000, p. 280) that make people better citizens. Seligman and Csikszentmihalyi (2000) further defined each of these three levels. Subjectivity is “well-being, contentment, and satisfaction (in the past); hope and optimism (for the future); and flow and happiness (in the present);” individuality is “the capacity for love and vocation, courage, interpersonal skill, aesthetic sensibility, perseverance, forgiveness, originality, future mindedness, spirituality, high talent, and wisdom;” and collectivity is “the civic virtues and the institutions that move individuals toward better citizenship: responsibility, nurturance, altruism, civility, moderation, tolerance, and work ethic” (Seligman & Csikszentmihalyi, 2000, p. 5).



At the same time, additional scholars have contributed to the development of positive psychology out of the aforementioned three levels. Maddux (2009) stated the following about positive psychology:

[It emphasizes] the development of positive human qualities and the facilitation of psychological health and happiness over the mere prevention or remediation of negative human qualities and human misery [and] individuals can be self-initiating agents for change in their own lives and the lives of others. (p. 287)

From the perspective of adaptive functioning, Thompson (2021) suggested positive psychology should include the “human capacity to maintain emotional well-being despite the setbacks, major trauma, and the ups and downs of ordinary life” (p. 368). Regarding positive psychology practice, Fredrickson (2002) divided positive psychology into primary enhancement and secondary enhancement in life, the former achieving optimal functioning and satisfaction and the latter endeavoring to peak functioning and fulfilling human potential.

In addition, Gable and Haidt (2005) held positive psychology is “the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions” (p. 104) to solve problems among complex human characters. A year later, Peterson (2006) argued positive psychology is “the scientific study of what goes right in life, from birth to death and at all stops in between” (p. 4) and to make lives most worth living via evidence-based research. Finally, positive psychology became “the empirical study of how people thrive and flourish [and a] study of the ordinary human strengths and virtues that make life good” (Mercer & MacIntyre, 2014, p. 154). In summary, these definitions contributed to a new discipline that focuses on the thriving of ordinary people by stimulating their inner strengths, facilitating them to live a good life. Furthermore, when discussing the subjective

experience of positive psychology, most researchers emphasize the notion of the self and how to improve the self.

Csikszentmihalyi (2014) situated the self in a consciousness pattern with the information-processing organism, holding that self-focused information processing may be ineffective due to the state of happiness in a self-eliminating and flow-pursuing process. Csikszentmihalyi (2014) defined flow as a “complete absorption in what one does” (p. 239), the highest level of subjective experiences. After having interviewed sports players, Csikszentmihalyi (2014) concluded the characteristics of people in flow are “intense and focused concentration, merging of action and awareness, loss of reflective self-awareness, a sense that one can control one’s actions, distortion of temporal experience, and the experience of the activity as intrinsically rewarding” (p. 240).

### **Positive Psychology in Depression and Education**

At first, positive psychology was applied in the treatment of patients with psychopathology issues. Seligman et al. (2005) conducted comparative experiments in which the results revealed the positive approach enhanced the psychological well-being (PWB) of patients and reduced their levels of depression. Seligman et al. argued positive psychology could help decrease human agony and mental health issues. Subsequent research also witnessed that positive psychological interventions and treatments, guided by positive psychology, were used for groups experiencing psychological disorders, and their distress and mental health issues were alleviated (Rashid, 2015; Seligman et al., 2005; Y. Zhao et al., 2019). At the same time, a series of systematic studies and meta-analysis studies have shown positive psychology interventions could greatly benefit participants’ well-being and physical and mental health. Sin and Lyubomirsky’s (2009) systematic review of 51 articles found positive psychology interventions could alleviate participants’ depression. For example, Wood et al. (2010) reviewed 12 studies

showing gratitude was also beneficial to well-being, and Mitchell et al. (2010) suggested positive psychology interventions could improve well-being and reduce the harm of illness.

Based on the three-level conceptual classification of positive psychology (i.e., subjective, individual, and collective) proposed by Seligman and Csikszentmihalyi (2000), Meyers et al. (2013) expanded the concept of positive psychology interventions further by cultivating valuable subjective experiences, establishing positive personal traits, and organizing the most beneficial and meaningful activities to improve civic virtue, establishing positive institutions. Since Meyers et al.'s study, positive psychology interventions have been widely used in clinical psychology with many advantages, including stimulating clients' positive psychological resources regarding character, meaning, and social relationships and promoting mental health and well-being by helping participants engage in positive activities (Y. Zhao et al., 2019).

Furthermore, positive psychology has the potential to assist individuals in identifying their capabilities; maximizing the use of valuable environmental assets (Wright, 1991); and applying this understanding to various aspects of their lives, including work, education, personal insights, relationships, personal development, and recreational activities (Seligman & Csikszentmihalyi, 2000). According to Seligman et al. (2009), positive education refers to "education for both traditional skills and happiness" at schools, where students could be armed with well-being abilities in terms of "resilience, positive emotion, engagement, and meaning" (p. 293). These skills, in the short term, could help students combat anxiety and improve their learning and thinking; in the long term, these skills could assist students in achieving future success in their careers and lives.

To understand and develop students' character strengths, Seligman et al. (2009) implemented intervention experiments on the positive psychology curriculum with 347 ninth-

grade students over 2 years and observed students in controlled groups to assess their character strengths, social skills, behavioral issues, and school well-being. The results of their study revealed well-being should and could be taught, demonstrating schools might serve at the forefront and center for positive psychology advocacy. Hence, as pivotal institutions for imparting knowledge and fostering skill development, schools have implemented and will continue to offer a range of positive programs (e.g., Penn Resiliency Program, Geelong Grammar School Project) aimed at promoting students' flourishing (Seligman et al., 2009).

Moreover, positive psychology interventions have also offered a fresh perspective on global education in terms of enhancing international students' well-being, positive emotions, and academic performance while inspiring young people to develop additional character strengths (Seligman et al., 2009; Waters, 2011). Resilience programs worldwide have helped students reconstruct their cognition structure and improve their social and problem-solving skills (Brunwasser et al., 2009; Gillham et al., 2008; Seligman et al., 2009). Given the effectiveness of reducing students' depression levels (Green, 2007), Seligman (2015) urged school administrators to popularize positive education to combat students' depression and enhance students' well-being (Y. Zhao et al., 2019). More specifically, positive education could improve students' skills in engaging in positive emotions, developing their ability to savor and express gratitude to increase their life satisfaction, decrease negative emotions, and counteract negative emotions (Fredrickson, 2001; Hurley & Kwon, 2012).

Altogether, positive education has generated many benefits, cognitively speaking. Specifically, these cognitive benefits include positive emotions facilitated by positive education, which can expand cognition, improve behaviors, and build psychological resources (Fredrickson, 2000, 2001; Fredrickson et al., 2021). Physiologically speaking, positive emotions can also resist

cardiovascular strain, build psychological resilience, and simultaneously stimulate a spiraling increase of healthy emotions (Fredrickson, 2000, 2001; Fredrickson et al., 2021). These abilities can also counteract negative emotions such as attention deficit or psychological tension (Basso et al., 1996; Niedenthal & Kitayama, 2013). Thus, Seligman's (2004) most remarkable contribution to positive psychology was not merely offering the definition and operationalization of it; Seligman also enriched positive psychology variables and dimensions (e.g., character strengths, emotions) in positive education research, which resulted in a more precise and scientific practice.

### **Positive Psychology in Second Language Education**

According to Y. Wang et al. (2021), positive psychology and second language (L2) education could not have been integrated without two international psychology conferences: (a) the Psychology of Language Learning in 2014 at Graz University and (b) the Positive Psychology in Second Language Acquisition in 2016 at Jyvaskyla University. These conferences laid a solid theoretical foundation for L2 education and offered a new vista for future research (Oxford, 2016b; Y. Wang et al., 2021).

Positive psychology could enhance L2 learners' learning experiences by increasing their initiative, resiliency, and motivation, allowing them to retain effective long-term learning and develop meaningful interactions with their teachers (Mercer & MacIntyre, 2014). Researchers have inquired what function well-being plays in L2 education. Seligman et al. (2009) conducted related research, concluding "more well-being is synergistic with better learning," "positive mood produces broader attention," and well-being allows "more creative thinking" (p. 295). Additionally, a higher well-being level could produce better L2 learning and thinking, echoing the ultimate goal of education (MacIntyre, 2016; Seligman et al., 2009). Therefore, positive

psychology equips students with three assets: (a) fighting depression, (b) enhancing life satisfaction, and (c) gaining productive learning and innovative thinking (Seligman et al., 2009).

Additionally, positive psychology is a bottom-up discipline with numerous subdomains of positive-related themes, which were formed previously, and these positive topics were concluded into a 36-item list (Lopez & Snyder, 2011; MacIntyre, 2021). However, it is impossible to exhaust every subject related to positive psychology, so MacIntyre (2016) proposed four research orientations on positive psychology in L2, including (a) better comprehending negative and positive emotions, (b) identifying individual L2 learners with character strengths, (c) harnessing the potential of the EMPATHICS model, and (d) observing L2 learners using the flow theory. Besides the research on character strengths, emotions, and flow, the EMPATHICS model was presented by Oxford (2016a), the EMPATHICS model is “an acronym outlining important psychological dimensions that are part of human well-being and that positively influence language learners’ achievement and proficiency” (p. 26), and the mnemonic EMPATHICS contains nine dimensions: “E: emotion and empathy; M: meaning and motivation; P: perseverance, including resilience and resilience; A: agency and autonomy; T: time; H: habits of mind; I: intelligence; C: character strengths; and S: self-factors, especially self-efficacy” (p. 26). Exclusively designed for the well-being study of L2 learners and teachers, the EMPATHICS model could offer limitless opportunities for diverse situations through connecting multidimensional elements. In the same year, to optimize the dimensions of quantification and enhance the completeness of the 18-element model, Oxford (2016b) further proposed three additional elements: identity, investment, and imagination. After that, the introduction of EMPATHICS foreshadowed the combination of positive psychology and L2 education (Mercer & MacIntyre, 2014). The theory pays tribute to Dörnyei’s (2009) complex dynamic system

theory, in which all components are interrelated to drive learners to “achieve high well-being and progress rapidly, develop proficiency, and relish the language learning experience” (Oxford, 2016a, p. 10).

### ***The Role of Emotions Played on L2 Education***

The study of emotions is the foundation of well-being and has fueled learning and teaching; it can roughly be divided into three phases: (a) avoidance of emotions from the 1960s–1980s, (b) anxiety dominated from the mid-1980s to the early 2010s, and (c) the parallel development of anxiety and positivity from the early 2010s to the present (Dewaele & Li, 2020). Specifically, anxiety and enjoyment in L2 education have epitomized negative and positive emotions. Horwitz et al. (1986) first coined the term “foreign language classroom anxiety,” defining it as “a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom learning arising from the uniqueness of the language learning process” (p. 128). Boudreau et al. (2018) proposed a concept to compete with foreign language classroom anxiety in 2018, foreign language enjoyment, by stating that “if pleasure can occur simply by performing an activity or completing an action, then enjoyment takes on additional dimensions such as an intellectual focus, heightened attention, and optimal challenge” (p. 153). Since then, research on both foreign language classroom anxiety and foreign language enjoyment has blossomed in L2 education in varied contexts across the globe.

### ***Character Strengths on L2 Education***

Positive individual traits were one of the three pillars of positive psychology proposed by Seligman and Csikszentmihalyi (2000), acting as buffers against negativity, assisting individuals in their worst times, and facilitating personal development and success (Peterson & Seligman, 2004). Twenty-four human strengths (e.g., creativity, hope, humor, zest) and six virtues (e.g., the

wisdom of knowledge, courage, humanity) drive positive analysis of human thoughts, feelings, and actions (Peterson & Seligman, 2004). Additionally, students with positive personality traits can control their emotions and use the power of their emotions to facilitate their L2 acquisition (Kossakowska-Pisarek, 2016), and character strength exercises modified EFL learners' negative emotions and autonomy during the learning process (Güler, 2018). Moreover, a case study by Piasecka (2016) revealed L2 learners' character strengths (e.g., self-efficacy) via incorporating poetry into L2 education helped students develop their linguistic skills.

### ***Flow in L2 Education***

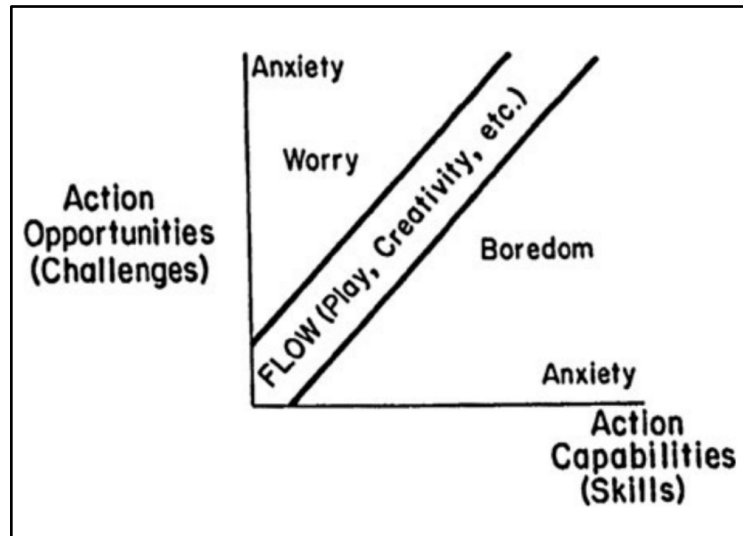
As one of the pioneers of positive psychology, Csikszentmihalyi (1988, 2009) focused on observing individuals' subjective experiences, particularly the feelings of happiness and creativity that arise during moments of wholehearted engagement, referred to as optimal experience or flow. Flow is an individual's "state of mind when consciousness is harmoniously ordered, and they want to pursue whatever they are doing for its own sake" (Csikszentmihalyi, 2009, p. 12). From the perspective of educational development, achieving the experience of flow entails maintaining a continuous balance between challenge and skill, providing timely feedback, and setting clear and attainable goals, which facilitates the comprehensive development of individual potential, promoting the realization of their optimal experiences (Csikszentmihalyi et al., 2018).

Given flow is an optimal learning experience, it is worth inquiring how individuals attain this peak state. Csikszentmihalyi (2014) contended flow occurs when there is a balance between an individual's abilities and the difficulty of the task at hand. When individuals perceive a task as more challenging than their capabilities, anxiety arises. Conversely, when individuals believe the task is less challenging than their abilities, boredom ensues (see Figure 2).



## Figure 2

### *Flow Theory*



*Note.* Reprinted from “Toward a Psychology of Optimal Experience,” by M. Csikszentmihalyi (Ed.), In *Flow and the Foundations of Positive Psychology* 2014, p. 212, Springer.

[https://doi.org/10.1007/978-94-017-9088-8\\_14](https://doi.org/10.1007/978-94-017-9088-8_14)

Moreover, researchers have further developed and summarized variables associated with the flow experience (Dörnyei, 2001; Schmidt et al., 1996). Egbert (2003) stated, “A perceived balance of skills and challenge, opportunities for intense concentration, clear task goals, feedback that one is succeeding at the task, a sense of control, a lack of self-consciousness, and the perception that time passes more quickly” (p. 550). Simultaneously, the flow experience incorporates intrinsic reward mechanisms, enabling individuals to attain “higher levels of performance” (Csikszentmihalyi, 1990, p. 74), achieving optimal learning outcomes. Furthermore, combining characteristics of language learning, researchers of flow theory (Csikszentmihalyi, 1975; Csikszentmihalyi & LeFevre, 1989; Egbert, 2003) have identified four underlying conditions for the emergence of language flow. Egbert (2003) stated:

There is a balance between challenge and skills that arouses the participants' will to explore during the task; the participant perceives that his or her attention is focused on the task; the participant finds the task intrinsically interesting or authentic (and will repeat it); and the participant perceives a sense of control. (p. 555)

Thus, the aforementioned concepts and frameworks related to flow lay a favorable foundation for language analysis and research (Egbert, 2003). Schmidt and Savage's (1992) investigation of Thai English learners across four dimensions (i.e., challenge and skill, attention, interest, and control) revealed that as opportunities for flow increased in each dimension, participants' perceptions of experiencing flow also heightened in the following survey. At the same time, to investigate the presence of flow in foreign language classrooms, Egbert (2003) conducted research among foreign language learners and confirmed flow exists in foreign language classrooms and had profound implications for language acquisition.

However, the emergence of flow in foreign language learners required teachers to facilitate its occurrence through aspects such as task design and attention training. This process is relatively complex. In fact, flow in positive psychology has greatly inspired L2 researchers on L2 concentration, motivation, and engagement (Ibrahim, 2020). To determine whether L2 learners experienced flow and whether it affected their reading time in an extensive English reading course for Japanese students, Kirchhoff (2013) found that although the flow experience did not motivate them to extend their reading time, graded reading did empower them in flow. In Japan, a quasi-experimental study was conducted among 42 language learners, in which Aubrey (2017) separated students into two equal groups. One group was a cross-cultural group and the other a home culture group. A total of 208 diary entries were collected and analyzed. The results showed

cross-cultural communication boosted the students' flow experience, especially their sense of success along with the continuing experiment.

### **Positive Psychology in China**

In modern China, the pursuit of happiness was officially claimed by Chinese Chairman Xi Jinping at the first meeting of the 12th National People's Congress plenum, who stated, "To realize the Chinese Dream of the great renaissance of the Chinese people is to achieve a strong and prosperous nation, the flourishing of ethnic groups, and the people's happiness" (Xinhua News Agency, 2013, para. 7), expanding a new pathway for national thriving by stimulating both citizens and officials' agency, mobilizing Chinese people to pursue the Chinese Dream, support the party's leadership, and achieve China's greatness (Inwood, 2019). That policy manifested how the pursuit of the Chinese Dream echoed the rejuvenation of positive psychology in China (Kuhn, 2013), from promoting personal thriving to achieving national prosperity, backed by Seligman's (2021) research on the psychological agency during the Greco-Roman epoch. Seligman (2021) found the state of psychological agency could influence the development of the whole human society, and officially developed the concept of psychological agency from the development of human civilization as a whole by claiming individual agency is an "effectiveness, optimism and imagination" belief with which "he or she could influence the world" (p. 1).

Likewise, similar findings were achieved in China. According to Jaspers (1953/2014), in the Axial Age of China over 2,000 years ago, when the Shang, Zhou, Qin, and Han dynasties thrived, the governing ideologies (i.e., Confucianism, Monism, and Legalism) had similar conclusions that psychological agency was associated with social prosperity. Yet, ancient China had its unique characteristics: a high level of individual agency heralded social prosperity and a

high level of collective agency led to both individual and collective prosperity; however, when the level of collective agency was low, the nation developed gradually, and when both types of agencies were low, the society stagnated, leading to mass riots and destruction (Y. Zhao et al., 2022). Therefore, pursuing the Chinese Dream, rejuvenating the nation, and thriving individuals who resonated with positive psychology were tightly related. In 2009, the Chinese Positive Psychology Association was established jointly with Tsinghua University to promote the science of happiness and improve the Chinese people's view of happiness in response to drastic social and economic changes. Professor Peng Kaiping's dialectism theory and related comparative study of Chinese and Western culture—combined with many years of research experience in positive psychology—opened a new path for Chinese happiness research.

### **Positive Psychology in Chinese EFL Education**

Having traced the development of positive psychology in China, the corresponding contributions of positive psychology applied in EFL education are explored in this section. Specifically, these topics include emotions, character strengths, and flow related to Chinese EFL education.

In China, diverse methods were used to investigate the emotions of many L2 learners. Research found that self-regulated students equipped with emotion management skills could achieve optimal functioning (Kossakowska-Pisarek, 2016), and emotions could directly affect L2 learners' attitudes, which influenced their attitudes toward teachers and courses and their desire to learn (MacIntyre, Ross, et al., 2019). Therefore, positive emotions were the driving force behind L2 learners' progress. Y. Jiang and Dewaele (2019) conducted a mixed methods study of 564 Chinese college-level L2 learners to compare the Chinese students with international students, finding foreign language enjoyment was more likely to be teacher related and foreign

language classroom anxiety was more likely to be L2 learner led, consistent with Dewaele and MacIntyre's (2014) international findings, which inspired language teachers in China to pay attention to EFL learners' emotions. As a result, C. Li et al. (2022) investigated the relationship between classroom environment, foreign language learners' emotions (i.e., L2 learner emotions), and willingness to communicate by surveying 2,268 Chinese university students. The results showed a significant correlation between classroom environment, L2 learner emotions, and willingness to communicate in EFL lessons, among which a significant correlation between L2 learner emotions and willingness to communicate was achieved. Plus, as a mediator between willingness to communicate and classroom environment, the emotions in L2 (i.e., enjoyment, anxiety, and boredom) showed significant differences, with enjoyment having the most significant impact, followed by anxiety and boredom, demonstrating the importance of language enjoyment in class.

In terms of character strengths, S. Yan and Ali (2021) discovered a beneficial bond between EFL learners, personality factors, and language acquisition in China. The evidence showed students can be trained to be stronger L2 learners by developing and strengthening their character strengths. Moreover, as a character strength, participants with positive thinking were also discussed in a study of Chinese college students of eight universities in Hong Kong (Chui & Chan, 2020). Chui and Chan (2020) found school adjustment was positively correlated with life satisfaction and positive thinking played a moderating role between them; therefore, the cultivation of positive thinking was suggested for the psychological health of Chinese college students.

Flow theory has been applied in specific language learning and teaching subdimensions. Egbert (2003) found flow could improve translation courses in foreign language learning in

China; specifically, flow experiences could be achieved by English instructors who present a straightforward course design and task requirements, cultivate an environment conducive to translation practice (e.g., materials, equipment, tools), understand their students' performance levels, and provide appropriate feedback. Moreover, digital devices and technical platforms could benefit the flow experiences of language learners. Y. Li et al. (2019) discovered digital feedback significantly increased students' attentiveness and boosted their intrinsic motivation, and concentration and intrinsic motivation boosted learners' perceived learning and satisfaction. Additionally, among 235 secondary school students who were surveyed and interviewed on an English dubbing software use, the results revealed participants had similar flow experiences with the help of the digital application, despite notable differences between the two groups in terms of factors leading to flow, such as skills, challenges, and clearly defined objectives (H. Liu & Song, 2021). Thus, positive-oriented research in terms of emotions, character strengths, and flow theory were widely applied in L2 education in China.

### **Pursuit of Happiness and Well-Being**

The pursuit of happiness has been humankind's ordinary wish (Wielander, 2018). Different cultures have produced different definitions of happiness, ways to pursue, social support, and social norms; meanwhile, different values and methods have also affected cognition and the pursuit of happiness (R. M. Ryan & Deci, 2001). Therefore, when happiness has been studied, it has been necessary to trace back the concept of happiness under different cultural backgrounds. In addition, given deeply rooted Indigenous cultures have cultivated distinct mentality and well-being levels, a comparison of happiness mentalities between Western and Eastern countries is essential (Kramer et al., 2002; Marsella & Yamada, 2000; Swartz, 1999;

Zeng et al., 2019). Consequently, the pursuit of happiness and well-being in the West and East, especially in China, are discussed in the following subsections.

### **Happiness and Well-Being in West**

Initiated by Greek philosopher Aristotle, the purpose of happiness in Western culture has been regarded as the ultimate goal of human beings by philosophers exploring and interpreting happiness via celebrating virtues pertaining to philosophies and religions (Christopher, 1999; Diener, 1984; Ryff, 1989). As a philosophically grounded and culturally embedded term, well-being is “defined by external criteria such as virtue or holiness” (Diener, 1984, p. 543) and evaluated by complex constructs aiming at “optimal psychological functioning and experience” focusing both on “everyday personal inquiries” and “intense scientific scrutiny” (R. M. Ryan & Deci, 2001, p. 142). According to Veenhoven (2014), happiness can be interpreted in a narrow and broad sense. In a narrow sense, happiness is “a subjective enjoyment of life” (Veenhoven, 2014, p. 2637); in a broad sense, it is the general term of all good things, which can be interchangeable with well-being to some extent (Veenhoven, 2014), but there are still differences between them.

Specifically, Veenhoven (1984) defined happiness as “the degree to which an individual judges the overall quality of his/her own life as a whole. In other words, how much one likes the life one leads” (p. 22). The earliest empirical research on happiness traces back to 1911, and the relevant research reports were included in the bibliography of the World Happiness Database, in which approximately 900 variants were used to measure happiness (Veenhoven, 2012a, 2012b, 2014). With the continuous development of modernization in various countries, average happiness levels began to widen gradually. Among global populations, happiness has nothing to do with IQ, but it is related closely to personal characters in general. People of faith tend to be

happier than people of no faith in most countries. Specifically, happiness is related tightly to an individual's behaviors, sensory experiences, and surroundings (Veenhoven, 2014).

The question of how to distinguish between happiness and well-being has also been explored. Researchers have made some distinctions from different perspectives rising out of different theories (Delle Fave, 2014). From the perspective of psychology, happiness involves experience and evaluation, and is transient (i.e., positive emotions); well-being includes a general cognition and judgment of an individual's life (Kahneman & Riis, 2005). From a paradoxical perspective, happiness is a process that follows the pursuit of what is considered meaningful by the individual, related to the individual's personality, performance, and value system, and it is a process of achieving goals based on meaning and potential, which cannot be achieved directly (Delle Fave, 2014; Martin, 2012). From a perspective of philosophy, the distinction of happiness and well-being was constructed in the ancient Greek philosophical system (i.e., hedonic and eudaimonic theories; R. M. Ryan & Deci, 2001).

According to Delle Fave (2014), hedonism can be traced to the 4th century BC when Aristippus believed happiness equaled with pleasure, and only happy things were good things in life. In the 18th century, Hobbes held happiness is the pursuit of human desires. A century later, Bentham, the founder of utilitarianism, proposed the maximization of individual happiness and interests as the cornerstone of the whole society, so the government should help citizens to pursue a higher level of happiness. Kahneman et al. (1999) claimed that, from a philosophical perspective, hedonism accentuates subjective well-being (SWB), including positive emotions and life satisfaction. Later, Delle Fave (2014) pointed out that eudaimonia, among which "eu-" represented kindness and "daimon" referred to inner spirit, was proposed by Aristotle, holding the combination of the two meant the realization of individual value and commitment to the



common goal of society. This theory was supported by humanistic philosophers. For example, Maslow (1970) claimed self-realization was the supreme need of human beings, and Rogers (1967) proposed the complete realization of individual functions, including self-acceptance and understanding, life experience, and sense of meaning. Keyes and Annas (2009) believed eudaimonia came from the interaction with the surroundings. R. M. Ryan and Deci (2001) divided happiness from two different philosophical perspectives (i.e., the hedonic perspective and the eudaimonic perspective) and suggested the hedonic perspective focused on pleasure and the pursuit of pleasure, defining happiness as the process of pursuing pleasure and avoiding pain (Kahneman et al., 1999). The eudaimonic perspective paid more attention to meaning and self-actualization, defining happiness as whether or not a person was able to reach their full potential (Waterman, 1993).

Research on happiness has mainly focused on the hedonism psychology, especially SWB (R. M. Ryan & Deci, 2001). Kahneman et al. (1999) studied SWB from both positive affect and life satisfaction. Diener and Lucas (2000) evaluated SWB from three aspects: life satisfaction, the presence of positive emotions, and the absence of negative emotions. However, there has been considerable controversy about the extent to which measures of SWB determine mental health (Ryff & Singer, 1998). R. M. Ryan and Deci (2001) noted two viewpoints of Greek perspectives on pursuing happiness: (a) hedonic (i.e., seeking pleasure) by Aristippus and Epicurus and (b) eudaimonia (i.e., helping individual thrive) by Aristotle, both of which were associated with life satisfaction; the former emphasized subjective happiness and the latter centered on potential fulfilling in the process of self-realization.

Based on the aforementioned philosophical perspectives, R. M. Ryan and Deci (2001) concluded different research methods were generated to measure happiness and well-being.

Scholars in the hedonic perspective have usually used the SWB scale to evaluate the individual's happiness level, focusing on the individual's emotional experience and satisfaction. Researchers from the eudaimonic perspective have focused more on individual self-actualization and growth, and have generally used assessment tools of mental health and human potential to study individual well-being. Moreover, such research methods have had different effects on people's SWB. Hedonic researchers have pinpointed individual happiness and satisfaction, and the pursuit of short-term happy experiences. However, eudaimonic scholars have fixated on individual self-realization and growth, and pursued long-term happiness and satisfaction. Although these two viewpoints overlap and complement each other (R. M. Ryan & Deci, 2001), hedonic produces more well-being in the short term and eudaimonia needs more than 3 months to increase. Nevertheless, combining both perspectives (i.e., hedonic and eudaimonia) can yield the greatest well-being (R. M. Ryan & Huta, 2009). This idea resonated with Henderson and Knight's (2012) findings that advocated to maximize the level of well-being by combining both.

Further, Keyes et al. (2002) classified well-being into SWB and PWB regarding positive interpersonal relationships and self-acceptance, personal growth, life goals, and meaning, and presented flourishing and languishing to differentiate further the mental health levels. Having absorbed Aristotele's intermediate philosophy, Ryff and Singer (1996, 2008) divided well-being research into human potential and human strengths to pursue both solipsistic goodness and outside-self goodness; meanwhile, the PWB was evaluated via autonomy, personal growth, environmental mastery, purpose in life, positive relations, and self-acceptance (see Table 1).

**Table 1***Definitions of Well-Being in the West*

Author		Well-being	
Kahneman et al. (1999)	Pursuit	Subjective well-being	Positive affect
			Life satisfaction
Diener and Lucas (2000)	Pursuit	Subjective well-being	Positive emotion
			Negative emotion
			Life satisfaction
R. M. Ryan and Deci (2001)	Classification	Hedonic	Eudaimonic
	Greek origins	Aristippus and Epicurus	Aristotelian
	Pursuit	Subjective happiness, pleasure, and pain avoidance	Fulfilling one's potential in a process of self-realization
		Positive emotions vs. negative emotions, life satisfaction	Fully functioning, meaningfulness, self-actualization and vitality
	Keyes et al. (2002)	Classification	Subjective well-being
Flourishing (optimal functioning)			Languishing
Greek origins		Aristotle's intermediate philosophy	
Ryff and Singer (1996, 2008)	Pursuit	Solipsistic and individual goodness	Responsibilities and duties outside the self
	Classification	Human potential	Human strengths
	Psychological well-being (Eudaimonic)	Autonomy	
		Personal growth	
		Environmental mastery	
		Purpose in life	
		Positive relations	
	Self-acceptance		

In a global view, back in the 1940s, the World Health Organization (1947) officially brought health together with well-being by defining well-being as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (p. 225). Later, the World Health Organization defined mental health as “a state of well-being in which the

individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and can contribute to his or her community” (Galderisi et al., 2015, p. 231), which is critical to individuals, societies, and countries.

Because cultural research is crucial for studying the spirituality of human beings (Tarakeshwar et al., 2003), the study of well-being based on distinct cultural backgrounds was worth mentioning for the purposes of this literature review. In the Western context, especially in the United States, well-being is primarily an individual’s self-esteem, life satisfaction, control over the environment, and meaning and purpose in life, which is tilted more to the mental health domain, and higher levels of well-being implied better social resources (Côté, 1997, 2002; Ryff et al., 2014; Ryff & Singer, 2008). In East Asian cultures, well-being converges more on the individual’s satisfaction with the environment, gratitude, and connection to the surroundings, and the involved feelings at both the physical and social levels, which was nicknamed as minimalist well-being in Japan. This viewpoint focuses on linking the outside world instead of concentrating on personal feelings (Kan et al., 2009; Kitayama et al., 2000; Vignoles et al., 2016).

The possible reasons for different ideologies (e.g., individualism or collectivism) have been eliminated by empirical well-being studies based on both Eastern and Western cultures, implying that all the values (i.e., individualism, transitional, and collectivism) could contribute to the development of PWB (C.-T. Lee et al., 2010; Sheldon et al., 2004; Sugimura et al., 2016). Cross-cultural well-being studies have existed since the early 2000s (Diener & Suh, 2003), finding the more people were attuned to the cultural context of their own country, the more likely they were to achieve higher levels of well-being (Kitayama & Markus, 2000).

Easterners and Westerners have two distinct interpretations of well-being based on different cultural backgrounds. Ryff et al. (2014) found Westerners held that individuals, as

active and independent agents, influenced others and their surroundings, believing well-being was an individual matter by maximizing personal positive emotions and realizing their self-worth, which was positive. Easterners believed well-being was an interdependent agent, which needed to adjust to others and surroundings. That is, well-being required rationality and interconnectedness with the surroundings. Individuals should try their best to meet the demands of others and society by making continuous self-improvement (see Table 2).

**Table 2**

*Well-Being in West Versus East*

Perspective	West	East
Individual	Active and independent agent	Interdependent agent
	Influence others or surroundings	Adjust to others or surroundings
	Express self's interests and goals	Maintain sympathy and respect for others
Well-being	Personal	Rational, intersubjective, and collective
	Pursue self's happiness	Find balance and moderation in the society
Motivation	Maximize the positive feelings about the self	Meeting common standards and social expectations
Self-evaluation	Self-enhancement	Self-criticism
	Positive	Negative

The following studies also confirmed the aforementioned views. A study based on American and Japanese cultures showed Americans developed positive self-evaluations and considered well-being to be the greatest avowed goal, while Japanese individuals tended to have negative self-evaluations and sought a balanced and moderate pursuit of well-being (Heine et al., 1999). East Asian people also believed well-being was not a personal achievement but rather a human connection that arose from society's demands (Uchida et al., 2013). A distinct

understanding of well-being in Japan, and East Asia as a whole, was heavily influenced by the traditional philosophical thinking of ancient China (i.e., Confucianism, Taoism, and Buddhism) by holding that well-being was fleeting and incomprehensible (Kan et al., 2009). Based on this distinction, people tended to adopt different coping mechanisms when ill beings showed up. Americans turned ill beings into anger and aggression; however, Japanese individuals reevaluated and refined themselves (Uchida & Kitayama, 2009).

The aforementioned research (Heine et al., 1999; Kan et al., 2009; Uchida & Kitayama, 2009). indicated social and environmental factors could influence personal overall well-being in terms of interpersonal relationships and the surrounding environment; thus, cultivating good interpersonal relationships and a conducive environment all contribute to improving individual well-being (R. M. Ryan & Deci, 2001). As for the differences between happiness and well-being, R. M. Ryan and Deci (2001) stated happiness—including positive emotions, negative emotions, and life satisfaction—could be viewed as an aspect of an individual's well-being, and well-being covers the overall development and functioning of an individual.

### ***Emotion and Well-Being***

Hedonic psychologists believe emotion is a continuous experience, which can be divided into positive and negative aspects, and most people experience positive effects most of the time (Diener & Lucas, 2000). Moreover, the overall judgment of SWB comes from the frequency rather than intensity of positive experiences (Diener et al., 1991). In view of this idea, researchers of SWB have mainly pursued maintaining positive emotions and eliminating negative emotions to achieve a higher level of SWB (R. M. Ryan & Deci, 2001).

Eudaimonic scholars have taken a long-term perspective and believe the acquisition of happiness is not the experience of positive emotions but the maximum display of personal

function; namely, after experiencing negative emotions, individuals can still give full play to their subjective initiative and eventually achieve a higher level of happiness (Parrott, 1993; Rogers, 1963; R. M. Ryan & Deci, 2001). However, related studies have also shown the suppression and control of negative emotions can produce low well-being and affect the physical and mental health of individuals, but expressing emotions is also beneficial to health (Butzel & Ryan, 1997; DeNeve & Cooper, 1998; L. A. King & Pennebaker, 1998). In addition, it was found that there was a moderate correlation between hedonistic well-being and SWB, and found positive emotions were strongly positively correlated with the experience of positive emotions and were catalysts for physical and mental health (Ryff & Singer, 1998).

### **Happiness and Well-Being in China**

Happiness, corresponding to the Chinese character fu (福), traces back to 11th-century China, encompassing a good mood, a good life, and a meaningful life, which has been a long-term state of mind based on the traditional Chinese ethical value system (Wielander, 2018). In 1979, the Chinese government adopted a reform and opening-up policy via establishing free trade zones, the Belt and Road initiative, and import expos, which have caused China's economy to thrive (Luo & Zhi, 2019). However, the gross domestic happiness of Chinese people has not increased (P. Zhang, 2022) and various social concerns have gradually emerged.

Since the beginning of the 21st century, with the rapid development of China's market economy, Chinese people have begun to have various discussions on happiness, especially the rise of the fever of sinology and Confucianism. Therefore, the impact of these phenomena on Chinese people's views of happiness is worthy of attention (P. Zhang, 2022). In the 1990s, with the gradual development of reform and opening, most Chinese people believed everyone could get rich by their own efforts. Therefore, an emerging middle class regarded happiness as material

and measurable (e.g., cars, houses; Fong, 2011). With the achievement of these material goals, the emerging middle class hoped “to create a good life of material comfort and social distinction” (L. Zhang, 2012, p. 8). However, since the beginning of the new millennium, as China’s economy has continued to develop, despite having more material foundations, more and more Chinese people have become unhappy or even angry (J. Yang, 2016). At the same time, the government called for economic development to be happiness centered instead of gross domestic product oriented (J. Lu, 2014). Up to this point, the concept of happiness among Chinese individuals has evolved into both a topic of study and a skill to be nurtured (Y. Zhang, 2019). However, L. Wang (2012) criticized prior happiness research in China, holding that a huge loophole exists: this prior research was completely based on the Western happiness research system, ignoring China’s own cultural tradition, the sincerest source of inner morality for Chinese people. As a result, the Confucian view of happiness has recently attracted attention. Peking University professor Yang Lihua explained the Chinese happiness as the following: Happiness isn't determined by external circumstances; rather, it hinges on one's inner qualities or ability to experience happiness (L. Yang, 2012). This character or capacity could be acquired through Confucian self-cultivation. Moreover, based on the discussion of China’s economic development and Chinese Confucian culture, Y. Zhang (2019) believed the Confucian concept of happiness in the context of modern China was generated by the dynamic interaction of the nation, market, and even global economic exchanges. This dynamic environment encouraged every Chinese person to integrate Confucianism and the Confucian concept of happiness into their daily life to negotiate and strategize life so it becomes more enjoyable and meaningful.

Since 2006, China Central Television, one of China’s most famous television stations, has set a goal to conduct a happiness survey on 100,000 Chinese people every year. By 2011,



about 9,155 articles in China's core newspaper, People's Daily, mentioned the word "happiness." In 2012, China Central Television aired a series of shows called "Happiness Survey," which triggered a heated discussion about happiness among Chinese people (Leyre, 2012; Rose, 1999; Wielander, 2018). Nowadays, as an essential part of the Chinese Dream, well-being improvement has been put on the agenda of national development as a national policy (Hsu & Yu, 2016).

Although both Chinese happiness and the happiness proposed by Seligman (2004) emphasize the cultivation of an individual's inner emotions, Chinese happiness has unique philosophical wisdom and cultural accumulation (Wielander, 2018). In China, Confucians believe happiness refers to "le," which is "the joy of Yanhui" (Shao et al., 2019, p. 705) mentioned in the *Analects of Confucius*, referring to how to find inner peace (Yu, 2009). The core of happiness in Confucianism is the ability to transcend social and material barriers via personal virtue, positive and meaningful experience, and moral guidance that individuals can obtain through self-cultivation (Y. Zhang, 2019). In essence, the Confucian concept of happiness reflects the core of Chinese culture, which encourages each ordinary person to live a "habitable, enjoyable and meaningful" (Y. Zhang, 2019, p. 152) life through their efforts.

Additionally, according to Matthyssen (2018), based on Taoism, Chinese people tend to avoid extreme emotional and mental states, such as excessive happiness, sadness, and emotional or intellectual engagement, which are considered harmful to physical and psychological health and social well-being. According to Matthyssen (2018), the Chinese philosophy of happiness includes the following concepts: "suffering brings good fortune" (p. 190), "difficult to be muddled" (p. 193) by saying taking a step back is the utmost smartness, "knowing contentment brings long-term happiness" (p. 198), and "knowing the mandate of heaven and being easily

contented” (p. 200). Therefore, Matthyssen (2018) noted Chinese people believe a moderate attitude and emotional self-control could improve the nation’s overall happiness and social harmony.

### ***Meaning in Life***

According to MacKenzie and Baumeister (2014), *meaning* is the idea of holding things together and is defined as “a shared mental representation of possible relationships among things, relationships, and events” (p. 26). Empowered individuals possess the capacity to recognize their surroundings, engage in effective communication, and exercise self-discipline and control in pursuit of their objectives. There are high and low levels of meaning, among which the high level of meaning covers a long time range and abstract complex relationships, and the low level of meaning emphasizes the specific content under a specified timeframe, and most situations in life are a mixture of multilevel meanings (MacKenzie & Baumeister, 2014).

Originally, Frankl (1992) proposed the pursuit of the meaning of life, suggesting people should take the search for the meaning of life as a driving force. Functionally speaking, meaning in life could offer a continuous and coherent interpretation during someone’s own life, help individuals determine the life orientation and goals, motivate them to keep striving and advancing toward the set goals, and empower individuals to discover their value of living in this world (George & Park, 2016; Martela & Steger, 2016). Philosophically speaking, Ryff and Singer (1998) believed meaning in life refers to a feeling that someone’s life serves a meaningful purpose or involves dedicating time and effort to achieve valued objectives. From the perspective of existentialism, the pursuit of meaning is an essential will of human existence and internal motivation, and meaning in life happens through achievement, interactions, or experiences with art and nature (Frankl, 1992). Baumeister (1991) defined meaning in terms of four needs,

“purpose, value, efficacy, and self-worth” (p. 29), and stated only people who meet the four needs will believe their lives are meaningful. Purpose needs guide people to set a goal, evaluate and analyze the goal based on current behavior, and achieve the goal through the choice. Value needs refer to people seeking their own positive value in life through legitimate and good motives. Efficacy needs refer to the ability of individuals to perceive they can achieve the set goal through their own ability, which is a manifestation of control. Self-worth needs refer to the need for individuals to understand their lives in a way that makes them feel self-positive worth (Baumeister, 1991).

From the perspective of positive psychology, meaning is an important component of positive mental health and well-being and is essential to maximize an individual’s potential (Deci & Ryan, 2000; Ryff & Singer, 1998). Acting as an essential indicator of well-being, meaning in life relates to individuals’ positive emotions and life satisfaction; additionally, the lack of meaning in life tends to cause negative emotions, anxiety, depression, and even some psychological problems (Heintzelman & King, 2014; Steger et al., 2006).

Based on the literature mentioned on the development of happiness and well-being, it was not difficult to find positive psychology is inclined to emphasize the positive and uplifting aspects of meaning, leading to positive and enjoyable experiences (MacKenzie & Baumeister, 2014). Positive emotions, a crucial factor of well-being, help construct meaning (L. A. King et al., 2006; Seligman, 2018). From a cognitive perspective, positive emotions could expand an individual’s attention scope and “momentary thought-action repertoires” (Fredrickson & Branigan, 2005, p. 2), giving individuals more flexible and creative thinking. Moreover, expanding the scope of attention helps individuals think in a broad and overall manner with the focus on the connections among things, so positive emotions could promote individuals to

construct meaning in life (Fredrickson, 1998, 2001, 2002; Fredrickson & Branigan, 2005; L. A. King et al., 2006). When encountering negative emotions, individuals who have set up a meaningful mind tend to recover better to their positive state (Davis et al., 2000); without the support of meaning, the negative emotions significantly narrow the range of thought and action relative to the neutral state (Fredrickson & Branigan, 2005). Having and realizing an individual's meaning simultaneously produces a sense of achievement and happiness (Reker & Wong, 1988). A study conducted among Chinese college students also endorsed the aforementioned result and supported developing an individual's spiritual values to enhance the participant's quality of life; further, cultivating spiritual values also helped individuals find meaning in their lives, which enhanced their sense of well-being (K. C. Zhang et al., 2014). Thus, positive emotions, meaning, and well-being are tightly correlated with each other.

### ***Ancient Chinese Philosophy and Dialectical Thinking***

Diener (2009) pointed out positive psychology is as old as humanity itself and stated, "In one sense, positive psychology is thousands of years old, dating back to the thoughts of ancient philosophers and religious leaders who discussed character, virtues, happiness and the good society" (p. 7). Moreover, traditional Chinese beliefs benefit Chinese people's quality of life (Chui & Chan, 2020). Thus, it was essential for this literature review to discuss the dominance of traditional Chinese schools of thoughts (i.e., Confucianism, Taoism, Mohism, and Legalism), which flourished in Chinese people and prospered the nation, which was demonstrated by Y. Zhao et al.'s (2022) research on Chinese people's agency during the most flourishing Spring and Autumn Period (i.e., 507–444 BC).

Y. Zhao et al. (2022) discussed the main propositions of each school of thought and illustrated the benefits of each. Respectively, Confucianism emphasizes the subjective initiative

of human beings by arguing human beings are the most critical thing in the world, and once individuals establish a personal will, they can achieve their goals through virtue, humanity, and art; thus, Confucianism firmly holds individual agency and collective agency work in concert with each other (The Analects, 1963; Y. Zhao et al., 2022). Respecting nature and changes, Taoism believes that although a high level of collective agency enhances individual agency, these factors are contrary to nature; thus, a nature-oriented and ambition-free society can be achieved by eliminating human agency (Ching, 1963/1969; Y. Zhao et al., 2022). Mohism advocates universal love, arguing individuals should be loved equally and virtuous ability should be emphasized, but fatalism should be opposed due to its negativity of reducing human willpower and mobility; meanwhile, the collective mobility should be enhanced (The Works of Mo Tzu, 1963; Y. Zhao et al., 2022). Legalism strongly supports collective mobility and opposes Confucianism, arguing collective mobility and individual mobility are zero-sum games (The Works of Han Feizi, 2018; Y. Zhao et al., 2022). In epic times, Confucianism, Taoism, Mohism, and Legalism laid a solid foundation for Chinese distinct thinking styles.

Philosophically speaking, Chinese thinking modes are dominated by Confucianism and Taoism (Wong, 2016). Per Wong (2016), as the root of Chinese culture, Confucianism promotes harmony, social stability, and world peace and pursues the cultivation of gentlemen with the five moral qualities (i.e., benevolence, righteousness, propriety, wisdom, and faith) to build a happy and harmonious society. With the awe of nature, Taoism advocates for combating life sufferings by returning to simplicity and nature, and arguing happiness comes from unhappiness and inner satisfaction can guide people through sufferings to achieve happiness.

Due to the aforementioned philosophies, Chinese people have tended to follow six philosophical thoughts: “uncontrollability of the world, ubiquity of change, fatalism, duality of

nature, collectivism, and utility of effort” (Wong, 2016, p. 3). Hence, everything in the world is changing in a dynamic and balanced manner, no one can fully control the outside world, and human life is fatalized, which helps Chinese people get rid of the torment of negative emotions such as shame, guilt, and anger. In comparison, Taoism holds misfortunes in life are not dire, which guides Chinese people to avoid conflict and seek reconciliation with people and surroundings.

Nonetheless, Confucianism strongly supports collectivism and advises Chinese people to seek a harmonious relationship with the collectives by expressing gratitude. In addition, individual efforts are emphasized, holding individuals can excel in their area through their actions (Wong, 2016). Thus, each generation of Chinese people have gradually formed a paradoxical yet harmonious thinking pattern of “leave everything to fate and heaven, and sincere determination can defeat fate” (Wong, 2016, p. 4).

Moreover, unlike the ancient Greek Pythagorean concept of harmony, Chinese harmony is a holistic combination of time and space, with metaphysical concepts and the ultimate pursuit of morality and aesthetics, a more accessible and more prosperous harmony deeply rooted in China’s long history and culture (C. Li, 2008), which has had a profound impact on Chinese thinking. In sum, the aforementioned thinking philosophies guide Chinese people in both dialectical and holistic modes of thinking under the influence of Confucianism and Taoism, which the Zhong–Yong Mindset and Yin–Yang Mindset manifested.

**Zhong–Yong Mindset.** Zhong–Yong’s thinking mode (i.e., the Doctrine of the Mean), the core of harmony and Confucianism, has served as the philosophical cornerstone of Chinese culture by influencing people’s behavior and psychology generation by generation (He & Li, 2021; X. Yang et al., 2016). Cognitively speaking, Kim et al. (2006) stated it is a dialectical

process from a cognitive standpoint with the characteristics of “holistic information processing,” “tolerance of apparent contradictions,” and “avoidance of extremities in implementation planning” (Chiu, 2000, p. 1098).

In Confucian culture, Zhong represents universality, impartiality, and harmony; Yong means balance and refusal to compromise with any party or any change; and Zhong–Yong aims to guide people’s minds to a continuous and balanced state to maintain stability and harmony, cultivating a philosophical mentality that people can feel and express their emotional perceptions and behaviors reasonably (He & Li, 2021; Ji & Chan, 2017; Lin et al., 2020), which impacts how Chinese people handle different relationships, including interpersonal and external relationships (He & Li, 2021). With a peaceful and upbeat attitude and the concept of harmony and difference, Chinese people have tended to make flexible coping mechanisms under changes in the surrounding environment (He & Li, 2021), which laid a foundation for Chinese people’s endless quest for fairness, impartiality, and harmony among all relationships (He & Li, 2021; X. Yang et al., 2016).

**Yin–Yang Mindset.** Taoism, the harmonious foundation of Chinese philosophy, has created the concept of “Way,” literally referring “simultaneously to direction, movement, method, and thought” (Peterson & Seligman, 2004, p. 42), and represented by two extremes of yin and yang to depict universal changes (S.-H. Liu, 1974). By holding the view that the universe is changeable, interconnected, and contradictory in a dynamic manner, this view led to a transcendental Chinese thinking approach focusing on connections, and which contributed to forming the Chinese nonlinear thinking of being optimistic while going through difficulties (Ji & Chan, 2017; Ji et al., 2001; G. Jiang & Chen, 2013; Peng & Nisbett, 1999). In short, these two

modes of thinking were deeply influenced by traditional Chinese culture and have been deeply embedded in the brains and thought processes of Chinese people.

### ***Emotional Complexity***

Research on positive emotions and negative emotions in Western countries can be traced back to the 1960s when Bradburn and Noll (1969) initiated a decade-long study of emotions in Americans and found significant negative correlations between the two. In Western cultures, positive and negative emotions are in opposition to each other; in East Asian cultures, especially Chinese cultures, the two complement and balance each other (Kitayama et al., 2000; Peng & Nisbett, 1999; Schimmack et al., 2002). This dialectical mode of thinking led to the dialectical pattern of emotions characterized by Chinese people under the influence of traditional Chinese philosophical thought (i.e., Confucianism, Taoism, and Buddhism; Peng & Nisbett, 1999). Consequently, although Westerners tend to savor and actively maintain positive emotions, Easterners focus more on suppressing their positive emotions, believing well-being and suffering are inseparable; thus, Easterners do not have a solid initiative to promote purely positive emotions (Miyamoto & Ma, 2011; Ryff et al., 2014).

Comparative studies focusing on the distinctive positive and negative emotions among Easterners and Westerners have acted as a cutting point in this regard. Seminal work presented by Bagozzi et al. (1999) confirmed the negative correlation between positive and negative emotions affecting Americans (i.e., a strong negative correlation for U.S. women vs. a weak negative correlation for U.S. men) and positive and negative emotions positively correlated among Chinese people (i.e., a strong positive correlation for Chinese women vs. a weak positive correlation for Chinese men). Subsequently, Schimmack et al. (2002) found the dialectical thinking mode in Asian culture had a significant impact on the emotions of East Asian people,



and compared with Western groups, the pleasant–unpleasant mood pattern had a small negative effect on East Asian people. On this basis, Spencer-Rodgers et al. (2010) proposed the concept of emotional complexity to illustrate “the co-occurrence of pleasant and unpleasant emotions” (p. 109), stating Europeans and Americans showed an opposite relationship in terms of good and bad feelings, and East Asian people, especially Chinese individuals, displayed a “positive, null, or significantly weaker negative relationship” (p. 109) between good and bad feelings. Although dialectical and ideological theories have been applied to analyze the causes of this phenomenon, Schimmack et al. (2002) conducted a comparative study of 38 countries with different ideologies and thinking patterns, and found dialectical analysis showed a more robust prediction of emotional complexity compared to collectivist analysis. Moreover, emotional complexity was closely related to the power of secular beliefs rooted in the national culture (Spencer-Rodgers et al., 2010).

### **Theoretical Framework**

In this section, the theoretical frameworks in this study are presented and briefly discussed in two parts. The first part introduces the theoretical frameworks, including well-being (i.e., PERMA) theory (Seligman, 2018) and mindset (i.e., implicit) theory (Dweck, 2000), including language learning mindsets (Mercer & Ryan, 2009). The second part presents the corresponding literature based on the theoretical framework for the study’s rationale.

#### **Well-Being (PERMA) Theory**

In addition to understanding happiness, positive psychology researchers have focused on whether people were fulfilling their potential, pursuing what interested them, and living fulfilling lives (Lopez & Snyder, 2011). Having built the authentic happiness theory with the foci of happiness and life satisfaction, Seligman (2018) expanded this theory into the well-being theory

and argued “well-being is a construct” (p. 32) consisting of five measurable elements, each of which contributes to well-being but cannot be defined separately as well-being. These five elements are “positive emotion, engagement, relationships, meaning, and accomplishment” (Seligman, 2018, p. 35), referred to by their initials PERMA. Besides the hedonic element in SWB theory and eudaimonia in PWB theory, PERMA includes the element of accomplishment to evaluate people’s achievements and performance (Seligman, 2018).

In PERMA theory, every element plays a crucial role in fostering positivity and enhancing individuals’ capacities for learning. With the development of empirical research on the PERMA framework, each factor could be investigated independently via corresponding scales to benefit learners’ performance (Goodman et al., 2017; Ryff, 1989; Seligman, 2011, 2018). The first element in the PERMA framework is *positive emotions*, referring to perceived feelings (e.g., hope, joy, interests) that contribute to learners’ curiosities, learning performance, and better well-being (Fredrickson, 2001; Seligman, 2012; L. Yang & Saad, 2020). *Engagement* is a state in which individuals can concentrate on their inquiry, generated by cognitive and emotional factors (Reschly & Christenson, 2012). *Positive relationships* are manifested in caring for others (Diener & Seligman, 2002) and benefit people by achieving more social support to buffer stress or combat difficulties (S. Cohen & Hoberman, 1983). *Meaning* refers to the sense of fulfillment (Seligman, 2012), and a higher sense of meaning predicts better academic performance (Tabbodi et al., 2015). Lastly, *accomplishment* aims to achieve better outcomes (Seligman, 2012). Although PERMA does not exhaust every factor, these five elements are interwoven and essential, constituting complete well-being in positive psychology. Consequently, PERMA research has validated the theoretical model.

Goodman et al. (2017) investigated the relationship between SWB and the PERMA model, and the exploratory structural equation modeling proved latent. To test whether the five elements of PERMA could predict flourishing outcomes among college students, such as physical health and college success, Coffey et al. (2014) conducted two experiments. In the first experiment, a 3-year longitudinal study, the researchers included four elements of PERMA (i.e., without the meaning element), physical health, and college success. Then, in a following study, the researchers expanded the number of participants and included all five elements of PERMA. The results of the first study were validated in the second, and by adding the measure of meaning, the second study further validated the feasibility of the PERMA model. Thus, the two studies together demonstrated the well-being theory could be used to predict college students' flourishing.

### **Mindset Theory**

From the perspective of students' intelligence evaluations, Bandura and Dweck (1985) proposed two self-theories: entity theory and incremental theory. Entity theorists believe intelligence is fixed and uncontrollable and that a gap in intelligence cannot be closed; conversely, incremental theorists believe intelligence is malleable, controllable, and can be closed (Dweck, 2000). Focusing on different self-evaluation viewpoints is essential because they can influence people's thoughts, emotions, and behaviors (Dweck, 2000). The two schools of thought have different opinions about failure. Entity theorists believe failure is due to uncontrollable intellectual factors (Blackwell et al., 2007; Lou & Noels, 2017), and people prefer to avoid failures because they feel insecure, anxious, and helpless when facing them (Robins & Pals, 2002). In contrast, incremental theorists believe intelligence can be developed and

improved over time through effort, learning, and perseverance because they regard failure as an opportunity where intellectual elements can be controlled (Dweck et al., 1995).

Based on these self-theories, Dweck and Leggett (1988) and Dweck (2007, 2012) presented mindset (i.e., implicit) theories, both fixed mindsets and growth mindsets, referring to different ideas about people's intelligence. People with *fixed mindsets* believe intelligence is inherently fixed and cannot be changed, and people with *growth mindsets* believe mindsets can be improved and enhanced through acquired efforts. S. Ryan and Mercer (2012) argued "implicit theories (or mindsets) refer to beliefs that individuals hold about the nature and malleability of various aspects of the human condition" (p. 74). Later, Lamb et al. (2020) extended the theory to the belief that a person's characteristics, such as personality or intelligence, are changeable.

### **Language Learning Mindset Theory**

Implicit theories provide researchers with a new vantage point for interpreting human behaviors. Dweck et al. (1995) stated different mindsets lead to different behaviors, and when individuals perceive human intelligence and character as static and unchangeable, they are inclined to adopt a fixed model to understand outcomes and behaviors. Conversely, when individuals view intelligence and character from a dynamic perspective, they aim to change and take appropriate actions based on specific behavioral or psychological conditions.

What, then, is a growth language mindset? With the domain-specific characteristics of mindset theory (Dweck et al., 1995), Mercer and Ryan (2009) introduced Dweck's (2000) mindset theory into applied linguistic studies and presented the fixed and growth language learning mindsets for language learners in general. Fixed language learners refer to a group of students who think successful language learners have innate learning abilities and are stable; growth language learners believe linguistic skills can be developed with commitment and effort.

Based on the aforementioned theories, S. Ryan and Mercer's (2012) study demonstrated language learners enjoy distinct and complex mindsets compared with other domains. A "critical period" (Lou & Noels, 2017, p. 215) for language learning does exist, which resonated with Horwitz's (1988) study on language learning age beliefs. Accordingly, Lou and Noels (2017) combined the aforementioned theories and formulated a brand-new language mindsets theory via three aspects: (a) general language intelligence beliefs (GLB), resonating with Dweck's mindset theory; (b) second language aptitude beliefs (L2B), referring to the language learning abilities; and (c) age sensitivity beliefs (ASB) about language learning, meaning whether the language learning ability is fixed considering age. Based on the aforementioned theories, Lou and Noels (2020) conducted a study demonstrating the GLM did exist, and could be taught among language learners, especially English underachievers, breaking the spell of language anxiety. Moreover, the Language Mindsets Inventory (LMI) developed by Lou and Noels (2017) was selected by the researchers to examine respondents' linguistic thinking patterns among English language learners to analyze the relationship between language achievement and thinking patterns (Dweck et al., 1995; Huang et al., 2023; Schroder et al., 2017; Zhu & Shek, 2020).

### **Current Studies on Well-Being in Language Education**

Under the umbrella of positive psychology theory, positive individual traits can buffer against negativity, assist individuals in their worst times, and facilitate personal development and success (Peterson & Park, 2014; Seligman & Csikszentmihalyi, 2000). Therefore, positive individual traits research is significant in English language education in China, where foreign language classroom anxiety affects EFL learners' thinking, emotions, and performance (Peterson & Park, 2014; Seligman & Csikszentmihalyi, 2000). As a result, positive individual traits research is vital in English language education in China. Moreover, researchers should consider

character strengths as a combined factor in well-being research rather than as a separate discipline (Keyes et al., 2002). Positive thinking could also be an indicator of well-being assessment (Diener et al., 2009). Thus, the current study explored the application of both PERMA in language education and language learners' mindsets.

### **Positive Emotions Studies**

Fredrickson (2001) presented positive emotions as a belief to expand people's thinking and actions, which helps them build lasting personal resources, including physical, intellectual, and social psychological resources. Fredrickson advocated positive emotions research should be conducted to flourish human life. Fredrickson (2001) described positive emotions from the perspective of four roles: "broaden people's thought-action repertoires, undo lingering negative emotions, fuel psychological resilience, and build psychological resilience and trigger upward spirals toward enhanced emotional well-being" (p. 224). According to Lyubomirsky (2001), in the realm of foreign language education, investigations into positive education theory have revealed the advantageous impact of positive emotions on L2 learners, particularly in enhancing learners' cognitive processes. Additionally, individuals with varying levels of happiness tend to employ distinct cognitive and motivational strategies; furthermore, the diversity of mindsets has been shown to exert influence on individuals' levels of pleasure. People with a positive attitude can achieve better academically (Shen, 2021; Sisk et al., 2018). A higher level of positive emotions with a higher level of affective factors catalyzed participants' deep cognition, which led to greater academic achievement (Ganotice et al., 2016; Shen, 2021). Consequently, participants with higher positive emotions were more inclined to choose diverse cognitive and metacognitive strategies leading to optimal learning outcomes (R. B. King & Areepattamannil, 2014).

As the foundation of well-being, emotions fuel language learning and teaching (Dewaele & Li, 2020). In the field of language education, anxiety and enjoyment have epitomized negative and positive emotions. As a result, two related terms emerged: foreign language classroom anxiety and foreign language enjoyment. Horwitz et al. (1986) first coined the term *foreign language classroom anxiety*, defining it as “a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom learning arising from the uniqueness of the language learning process” (p. 128). Boudreau et al. (2018) proposed the concept of foreign language enjoyment, stating, “If pleasure can occur simply by performing an activity or completing an action, then enjoyment takes on additional dimensions such as an intellectual focus, heightened attention, and optimal challenge” (p. 153). Since then, research on both concepts has blossomed throughout language education in varied language contexts across the globe (Kossakowska-Pisarek, 2016; MacIntyre, Gregersen, & Mercer, 2019).

The emotions in language learning have been investigated through a wide range of studies internationally. The research has indicated emotions can directly affect language learners’ attitudes—including attitudes toward teachers, courses, and learning—and equip self-regulated students with emotion management skills and help them achieve optimal functioning (Kossakowska-Pisarek, 2016; MacIntyre, Ross, et al., 2019). This finding was also true for language learners in China. Having conducted a mixed methods study of 564 Chinese college-level language learners, Y. Jiang and Dewaele (2019) found foreign language enjoyment was more likely to be teacher related and foreign language classroom anxiety was more likely to be language learner led, consistent with Dewaele and MacIntyre’s (2014) international findings.

C. Li et al. (2022) conducted an extensive study on the emotions of 2,268 Chinese language learners to investigate the relationship between classroom environment, language

learner emotions, and the willingness to communicate. The authors found significant correlations between classroom environment, language learner emotions, and willingness to communicate in EFL lessons, and the correlation between language learner emotions and willingness to communicate was stronger. As a mediator between willingness to communicate and classroom environment, the three specific language learner emotions (i.e., enjoyment, anxiety, and boredom) were ranked, with enjoyment having the most significant impact, followed by anxiety and boredom.

In a longitudinal study of 786 elementary school students aged 4–6 in Hong Kong, Kwok and Fang (2020) found that combining positive emotions, meaning, engagement, and strengths optimized educational outcomes. The authors collected questionnaire data in 1-year intervals. They analyzed these data using an autoregressive cross-lagged panel with structural equation modeling techniques, which showed positive emotions predicted positive meaning and developed participants' character strengths. The study also found engagement, positive emotions, and meaning were interrelated, and character strengths could moderate the relationship between emotion and engagement. The study also demonstrated strong correlations of PERMA factors in the framework, and each PERMA element benefited better academic performance.

### **Well-Being Studies With the PERMA-Profiler**

Kern et al. (2015) developed the PERMA-Profiler, an adaptation of the original PERMA model that incorporates depression and anxiety as subcategories, to gauge the well-being of 516 male Australian students. Through factor analysis, the researchers identified four factors that aligned with the PERMA model, and also unveiled two supplementary negative factors that demonstrated a multidimensional pattern in the assessment of well-being, encompassing both positive and negative dimensions. Following the factor analysis, a cross-sectional correlational



study was conducted to examine the web of relationships between these factors and “life satisfaction, hope, gratitude, school engagement, growth mindset, spirituality, physical vitality, physical activity, somatic symptoms, and stressful life events” (Kern et al., 2015, p. 262). The univariate correlational results showed a positive correlation between the well-being factors and other scales, and the negative factors were included in the PERMA theory (Butler & Kern, 2016).

The PERMA-Profiler has been widely used among global language teachers’ well-being research. Having combined the PERMA-Profiler with the Big Five personality traits (i.e., extraversion, agreeableness, conscientiousness, emotional stability, and openness), the results showed personality and stress-oriented factors were directly related to language teachers’ well-being, suggesting teachers’ stress and personality traits should be improved to promote overall well-being in the language teacher community (MacIntyre, Ross, et al., 2019).

During the high-intensity online teaching precipitated by the COVID-19 global pandemic, MacIntyre et al. (2020) used the PERMA-Profiler to measure L2 teachers’ well-being, stress, resilience, and coping mechanisms. The findings showed positive psychological outcomes, such as well-being, health, and happiness, were positively associated with approach coping strategies and negatively associated with avoidant coping strategies, and people with a high level of well-being tended to adopt positive approaches to cope with difficulties.

Also, during this timeframe, MacIntyre et al. (2022) conducted an 8-month multidimensional study using various measures, including the PERMA-Profiler. This study included two waves of data collection from 765 language teachers worldwide. The first wave of data were collected in April 2020 primarily from the PERMA-Profiler and stress and anxiety scales, which revealed a considerable drop in well-being and a significant rise in despair,

loneliness, and anxiety among language teachers. A follow-up study was conducted 8 months later with 245 participants using the PERMA-Profil; stress, anxiety, hope, and resilience scales indicated a correlation between hope and well-being and other measures of successful coping, and signified that positive characteristics (e.g., hope, resilience) benefited well-being and combated stress. In addition, a series of studies conducted by MacIntyre, Ross, et al. (2019) and MacIntyre et al. (2020, 2022) found the PERMA-Profil could be used in conjunction with other scales to generate a multidimensional research study to investigate participants' well-being in language education further (see Table 3). These findings collectively highlighted the crucial role of positive emotions and well-being in language learning and teaching, emphasizing the need for further research in this area to inform educational practices and interventions aimed at fostering positive learning experiences and outcomes.

**Table 3***PERMA-Profiler Studies*

Study	Sample	Study focus	Measures	Methods
Kern et al. (2015)	Australian male students ( $n = 516$ )	Well-being and life satisfaction, hope, gratitude, school engagement, growth mindset, spirituality, physical vitality, physical activity, somatic symptoms, and stressful life events	PERMA; Growth Mindsets; Engagement; Hope; Gratitude	Factor analysis; univariate correlation
MacIntyre, Ross, et al. (2019)	English as a foreign language (EFL) teachers ( $n = 47$ )	Well-being, stress, and personality traits	PERMA-Profiler; Big Five Factor Markers; Stressor Scale	Correlations
MacIntyre et al. (2020)	Language teachers ( $n = 634$ )	Well-being, health, happiness, and approach coping strategies during COVID-19 online teaching	PERMA-Profiler; Brief-COPE; Stress Index; Resilience Scale; WHO-5 Well-Being Index; Growth Through Trauma; State Anxiety; Health Index	Correlations; analysis of variance
MacIntyre et al. (2022)	Language teachers worldwide ( $n = 765$ )	Well-being, health, happiness, approach coping strategies, and sense of growth during trauma	PERMA-Profiler; Hope Scale; Brief-COPE; Stress Index; Resilience Scale; WHO-5 Well-Being Index; Growth Through Trauma; State Anxiety; Health Index; single-item indicators of negative emotions	Multivariate independent $t$ tests
Wammerl et al. (2019)	German-speaking individuals ( $n = 854$ )	Reliability and validity of a German version of the PERMA-Profiler; measure well-being multidimensionally	PERMA-Profiler; Depression-Anxiety-Stress-Scale; Psychological Well-Being (PWB) scale	Confirmatory factor analysis (CFA); Intercorrelated five-factor model
de Carvalho et al. (2021)	Brazilian adults ( $n = 1,327$ )	Reliability and validity of the PERMA-Profiler in Brazil; PERMA with SWB, PWB, gratitude, optimism, self-esteem, and happiness	PERMA-Profiler; Satisfaction with Life Scale; PWB scale; Positive and Negative Affect Schedule; Rosenberg Self-Esteem Scale; Gratitude Questionnaire	CFA; correlation; models

## **Language Learning Mindset Studies**

Mindset studies and well-being studies were closely correlated in China. Zeng et al. (2016) argued the goal of positive psychology education should be not only to enhance students' well-being but also to improve their academic performance. Therefore, Zeng et al. conducted a quantitative study of 1,260 Chinese primary and secondary school students using scales on growth mindset, PWB, resilience, and school engagement to investigate potential correlations. The results showed students with high levels of growth mindset enjoyed higher levels of well-being, greater resilience, and better school engagement, suggesting growth mindset education significantly impacted students' mental health and academic performance.

Furthermore, the presence of a growth mindset among foreign language learners has been associated with significant levels of perseverance and a heightened willingness to invest additional time in enhancing their English proficiency (J. Liu, 2022), garnering increasing attention in scholarly discourse. To dissect its positive impact on English language learners from a positive psychology perspective, X. Hu et al. (2022) conducted survey research of 388 EFL students at a Chinese university using a growth mindset as the entry point and grit and learning enjoyment as mediators. The results demonstrated a positive relationship between growth mindset, English language performance, grit, and foreign language enjoyment, which predicted that growth-minded foreign language learners had strong willpower, and these individuals developed joy in learning and gradually become better learners.

To investigate whether positive psychological constructs (i.e., classroom enjoyment, grit, and growth mindset) and extramural English scores could predict students' willingness to communicate in a second language (i.e., L2 willingness to communicate) both inside and outside the classroom, J. S. Lee and Taylor (2022) collected data from 106 elementary school students

aged 6–13 in Hong Kong. Using hierarchical regression analysis, they found classroom enjoyment, grit, and growth mindset predicted L2 willingness to communicate inside but not outside the classroom. To explore the distinction between inside and outside the classroom further, semistructured interviews ( $n = 8$ ) were conducted, and the results showed teachers could enhance students' L2 willingness to communicate inside the classroom by creating a positive classroom environment. In contrast, students' L2 willingness to communicate outside the classroom could only be achieved by developing their growth mindset. Another research with structural equation modeling methods conducted by Zeng et al. (2016) verified that higher levels of growth mindset predicted higher levels of PWB and school engagement, where resilience played a moderating role.

From a globalized view, growth mindset has acted as an essential role in improving participants' English achievements. Based on data from 6,766 Filipino high school students in the Programme for International Student Assessment 2018 database, Bernardo (2022) investigated the relationship between students' growth mindset in learning English and reading ability with the students' socioeconomic status factors being introduced to influence the relationship while controlling for teacher and motivational variables. The hierarchical regression analysis revealed a weak but significant positive relationship between growth mindset and reading ability, and the association diminished when socioeconomic status decreased.

Given the English subject was divided into four domains (i.e., listening, speaking, reading, and writing), research on the language learning mindset impact on specific domains was investigated. Khajavy et al. (2020) surveyed 489 Iranian university students on language reading anxiety, language reading enjoyment, and language reading achievement. The hierarchical multiple regression analysis showed an English reading mindset significantly increased

enjoyment of and achievement in foreign language reading, confirming a language reading mindset predicted reading achievement.

Sadoughi et al. (2023) found an association between language mindset and academic engagement. These authors collected survey data from 384 Iranian EFL learners using the L2 Motivational Self System, the Academic Engagement Scale, and the LMI. Through structural equation modeling analysis, the authors found a growth mindset predicted students' academic engagement via the ideal L2 self. Learning experiences moderated the relationship between mindset and academic engagement. A growth mindset positively predicted students' positive learning experiences; thus, the LMI was an essential indicator of foreign language learning mindset and engagement.

In conclusion, the studies reviewed (Bernardo, 2022; Khajavy et al., 2020; J. S. Lee & Taylor, 2022; Sadoughi et al., 2023) highlighted the significant role of a growth mindset in enhancing various aspects of English language learning and academic engagement among global students (see Table 4). X. Hu et al. (2022) found a growth mindset positively correlated with English language performance, grit, and enjoyment of foreign language learning, suggesting growth-minded learners exhibit resilience and derive pleasure from the learning process. J. S. Lee and Taylor (2022) demonstrated classroom enjoyment, grit, and a growth mindset predict students' L2 willingness to communicate in the classroom context. Furthermore, Zeng et al. (2016) emphasized the importance of a growth mindset in predicting PWB and school engagement, with resilience acting as a moderating factor. Bernardo (2022) expanded the scope by investigating the relationship between a growth mindset and reading ability among Filipino high school students, highlighting the impact of socioeconomic status on this association. Additionally, Khajavy et al. (2020) revealed the positive influence of an English reading mindset

on reading enjoyment and achievement among Iranian university students. Finally, Sadoughi et al. (2023) underscored the link between a growth mindset and academic engagement, mediated by students' ideal L2 self and learning experiences. Collectively, these findings underscored the pivotal role of a growth mindset in fostering positive outcomes in English language learning and academic engagement, with implications for educational practices and interventions aimed at promoting a growth mindset among EFL students.

**Table 4***Language Mindsets Inventory Studies*

Study	Sample	Study focus	Measures	Methods
Bernardo (2022)	Filipino high school students ( $n = 6,766$ )	Growth mindset and English as a foreign language (EFL) reading proficiency	Growth Mindset Scale	Hierarchical regression
Khajavy et al. (2020)	Iranian university students ( $n = 489$ )	Language mindset, second language (L2) reading anxiety, L2 reading enjoyment, and L2 reading achievement	Growth Mindset Scale	Confirmatory factor analysis (CFA); hierarchical multiple regression
Sadoughi et al. (2023)	Iranian EFL learners ( $n = 384$ )	Mindset and academic engagement	Language Mindsets Inventory; Academic Engagement Scale; L2 Motivational Self System	Structural equation modeling
J. S. Lee and Taylor (2022)	EFL primary school students in Hong Kong, China ( $n = 106$ )	Growth mindset, school enjoyment, and grit	Language Mindsets Inventory; Enjoyment Scale; Grit Scale	Mixed: hierarchical regression; semi-structured interview
X. Hu et al. (2022)	Chinese college EFL learners ( $n = 388$ )	Growth mindset, foreign language enjoyment, grit, and language performance	Language Mindsets Inventory; L2 Grit Scale; English Classroom Enjoyment Scale; College English Test-Band 4	CFA; structural equation modeling
Zeng et al. (2016)	Chinese primary students and vocational middle school students ( $n = 1,260$ )	Growth mindset, well-being, and school enjoyment	Growth Mindset Scale; Brief Resilience Scale; Flourishing Scale; Utrecht Work Engagement Scale—Student	Structural equation modeling



## **Additional Factors That May Influence Positive Psychology and Language Learners in Vocational Colleges in China**

### **Child Policy and Education in China**

In the late 1970s and early 1980s, Chinese demographers calculated that by the year 2080, China's population would reach 2.1 billion people. Thus, to control the rapid growth of the population, the Chinese government began to take measures to control the increasing population (Edwards et al., 2005; Q. Jiang et al., 2013; Tseng et al., 1988). In June 1978, the Central Committee of the Communist Party of China formally proposed couples should give birth to two children at most. The provinces started positively responding by rewarding the parents of one child while punishing parents who had two or more children (W. Feng et al., 2013; Liang, 2007). Known as the one-child policy, the population control policy introduced in China from 1978 to 1980 was officially phased out in 2015 but lasted for around 40 years (Q. Jiang et al., 2013). The result of this policy was a reduction in the Chinese population by 250 million people (Kane & Choi, 1999). Since then, China's parent-child relationship changed from the traditional Confucian model of taking care of the older generation to the new child-centered model. Thereafter, the only child in each family was overindulged by parents and their four grandparents due to the one-child model. Over time, these children became the priceless treasure of the family, known as little princess and little emperor (L. Chen, 2018; Fong, 2004; Goh, 2011; Naftali, 2016).

The one-child policy led to side effects between students of only child and multichild families, including differences in academic outcomes (Lao & Dong, 2019). That is, Z. Chen and Liu (2014) found only child participants had more advantages in terms of academic performance compared with two, or more than two, peers of siblings. The only child EFL learners had a better

classroom performance than their counterparts, especially in English classes with a perception of higher teacher supports being provided to the only child students (Y. Hu, 2022).

In terms of social relationships, multichild Chinese college students had higher levels of pressure than those who were only children (Chu et al., 2015). Some subtle distinctions in communication skills and psychological and behavioral skills between only child and multichild students were found, where the only child demonstrated better psychological and behavioral adaptability and a closer relationship with their peers (R. X. Liu et al., 2010; W. Wang et al., 2020). Research findings indicated only child students in China exhibited greater academic proficiency compared to their counterparts from multichild households (Lao & Dong, 2019; R. X. Liu et al., 2010; W. Wang et al., 2020).

From a family perspective, different fertility decisions have shaped the inequality in educational resources between only child and multichild families, mainly reflected in the divergence in parental educational background and resources (X. Chen et al., 2023). The only child students had more advantages in the aspect of education expectations and academic performance, compared to children who had two or more siblings in their family, because parents of only child students with higher levels of education level, occupational status, and family income could offer more intellectual support and attention, and equip their children educational planning and support their additional ways to develop (Z. Chen & Liu, 2014). Moreover, only child parents tended to create a good parent–child relationship, cultivating greater self-esteem in their children and promoting a high level of parent–child interaction (W. Wang et al., 2020).

Parents' educational background was also positively associated with students' English performance (Y. Hu, 2022; W. Wang et al., 2020). According to Y. Hu (2022), only child students whose parents had higher educational degrees had better performance and were more

likely to attract teachers' attention in English classrooms. Moreover, only child students whose mothers had a bachelor's degree or higher showed stronger academic adaptability in English learning. However, when the variable of parental education background was controlled in the study, the only child students still showed a higher academic advantage (W. Wang et al., 2020). Accordingly, whether with a higher-educated parent or not, the only child students were likely to stand out in academic outcomes.

### **Rural and Urban Education in China**

The educational disparity between urban and rural areas is a significant catalyst for various forms of inequality in Chinese society (Tian & Chen, 2020). Due to the Hu Kou system (i.e., Chinese household system), Chinese people were categorized into two types of households (i.e., agricultural and nonagricultural) depending on the place of origin (i.e., urban or rural), leading to inequities in education, employment, and healthcare resources (Chan & Buckingham, 2008). This system accelerated a distinction in rural and urban welfare, incomes, and other resources. The rural parents, engaged in agricultural or manual labor work, had lower family incomes because they did not have college degrees. The well-educated urban parents worked in professional or government-type jobs with stable and higher incomes to provide constructive education advice and assistance for their children's development (Chan & Buckingham, 2008; Y. Lu & Wang, 2013; Tian & Chen, 2020; F. Wang & Wu, 2018). English language education also had an impact on the differences in urban and rural China in terms of the qualifications and quantities of English language teachers, and the frequency of teachers' instructions on language learning (Wu, 2008). Compared with English learners in rural areas, English learners in big cities had access to more qualified English teachers, modern teaching equipment, native English speakers, and opportunities to travel abroad even from the kindergarten age (A. Feng, 2005).

With the increase of China's urbanization, a special group of children, called migrant children or left-behind children, whose parents "worked away from the home area for more than 6 months while they have been left at home in the countryside and taken care of by other relatives during the period of compulsory education" (K.-F. Zhao et al., 2009, p. 1483), came into being. Without enough educational resources, children, especially children with migrant parents, experienced a delay rate in learning, which is highly correlated with academic performance (Y. Zhao et al., 2019).

As of 2010, the population of left-behind children aged birth to 17 years old numbered 61 million. Among them, 47% had parents working outside their birthplace, with 36% having fathers and 17% having mothers in such employment. This demographic constituted 38% of rural children and 22% of children nationwide (China Women's Federation Research Group, 2013). There were several reasons for this phenomenon. From a policy perspective, China's household registration system and school registration system limited the migration of migrant workers' children. In addition, from an economy perspective, rural migrant workers were gone for long periods of time for the labor remuneration; hence, they were unable to focus on settling or accompanying their children and families. They also could not afford the high cost of living in the city, so the children were forced to stay in rural areas and entrusted to relatives (L. Li & Li, 2010; Xiang, 2007; K.-F. Zhao et al., 2009).

It has shown the mental health status of the left-behind children were severe because they experienced many threats, such as economy, the living environment, and caretakers, all of which had a direct impact on the mental health of the left-behind children. Further, the absence of both parents directly affected the academic performance of left-behind children; the longer the parents left, the lower the children's academic performance (Zhou et al., 2014). Among middle school

students, the academic performance, social status, and mental health status of rural students directly led to the dropout rate of up to 63% of these children (Shi et al., 2015). Hence, there remains a gap between rural and urban students, both in English learning and mental health.

### **The CET in China**

The CET, the most significant national language test in the world, was developed in response to the National University English Teaching Syllabus and China's reform and development, and it has developed into a widely accepted standardized EFL test in China with a scientific marking system and precise score setting (J. Yan & Huizhong, 2006). Additionally, the fairness of the CET Band 4 (i.e., CET 4) was verified by Kunnan's (2001) test evaluation mechanism in terms of five dimensions: validity, unbiasedness, accessibility, administration, and social consequences (Zheng & Cheng, 2008). Specifically, the examination was mainly divided into Bands 4 and 6, in which the CET 4 had a broad influence and high authority, and served as a recognized English proficiency examination in society and enterprises (J. Yan & Huizhong, 2006). Additionally, it served as an indicator of the quality of English instruction in colleges and institutions (Xu & Liu, 2019). The total score of the test was 710 points, including listening (249 points, 35%), reading comprehension (249 points, 35%), cloze or error correction (70 points, 10%), and writing and translation (142 points, 20%; Zheng & Cheng, 2008).

The 35-year-old CET is a "norm-referenced," "criterion-related" (H. Wang et al., 2023, p. 4), and highly reliable English proficiency test, in which scores between 220 and 710 are reported (H. Wang et al., 2023; Z. Yao et al., 2023). Scores are calculated using the formula displayed in Figure 3.

### Figure 3

#### *CET 4 Calculation*

$$\text{TotSco} = \frac{(X - \text{Mean})}{SD} \times 70 + 500$$

*Note.* Based on “Connecting Foreign Language Enjoyment and English Proficiency Levels: The Mediating Role of L2 Motivation,” by H. Wang, L. Xu, & J. Li, 2023, *Frontiers in Psychology*, 14, Article 1054657. <https://doi.org/10.3389/fpsyg.2023.1054657>

In line with international language tests such as the Test of English as a Foreign Language and the International English Language Testing System, the design and assessment of CET 4 can be benchmarked against the Common European Framework of Reference for Language (Council of Europe, n.d.), which assesses learners’ language proficiency in terms of communicative, sociolinguistic, and pragmatic competence (H. Wang et al., 2023; Z. Yao et al., 2023). Comparative studies have shown testers with a medium CET 4 score were equivalent to people who passed the International English Language Testing System and Test of English as a Foreign Language Internet-Based Test (Z. Yao et al., 2023).

Typically, the CET 4 test is held at 9:00 a.m. on the third Saturday of each June and December and lasts 125 minutes (Z. Yao et al., 2023). Although there is no official pass line for the test, test stakeholders tend to regard 425 as the pass line for the test because only the students with a CET 4 score of 425 or higher are entitled to attend the higher level test of CET 6, and students with scores higher than 550 are eligible to take the equivalent level of oral exams (Xu &

Liu, 2019; Z. Yao et al., 2023). Furthermore, there are no restrictions on the number of times students can take the test, allowing them to attempt it multiple times before graduation, choosing to report their highest score to their future endeavors (Z. Yao et al., 2023).

Moreover, in some Chinese universities, CET 4 scores had a direct impact on whether students graduated with obtaining a bachelor's degree, excellent employment contract, and the financial rewards after joining the workforce, with studies that have shown students who passed the CET 4 had starting salaries 10% higher than those who did not pass the test (Guo & Sun, 2014; H. Wang et al., 2017; Z. Yao et al., 2023). Even in some large cities, such as Shanghai, the employee whose CET score was higher than 425 tended to achieve additional points in the outbound talents assessment system, giving them more social benefits in the workplace (Qian et al., 2020; Z. Yao et al., 2023).

Altogether, the CET 4 occupies a crucial position among college students in mainland China and is a nationally recognized and indispensable competency certificate for college students. Additionally, the CET 4 pass certificate is a prerequisite for students to obtain a bachelor's degree or to further their graduate studies. In addition, employers regard CET 4 scores as an important indicator of employees, and it could determine whether an employed person could obtain permanent residency or Hu Kou in a big city (Guo & Sun, 2014; J. Yan, 2008; H. Yang, 2003). Namely, achieving the CET 4 certificate is beneficial for college students' competence and development.

### **Chapter Summary**

To understand the relationship among well-being statuses, language learning mindsets, and English language proficiency comprehensively, it was essential to explore various aspects in the research, such as the emergence and influence of positive psychology in educational

contexts. Additionally, understanding the historical trajectory of happiness and well-being in Eastern and Western cultural paradigms was crucial. Furthermore, examining the reciprocal dynamics between education and well-being was necessary. Moreover, considering the cultivation of Chinese-style cognitive frameworks rooted in traditional cultural ethos, child policy, and rural and urban differences in education was important. Finally, acknowledging the significance of the CET 4 was essential. This integrated approach laid a robust groundwork for conducting a nuanced examination of well-being dynamics among EFL learners enrolled in Chinese higher vocational institutions. Concurrently, the relationships between well-being, positive language mindset, and English proficiency were intricately examined. The in-depth exploration of existing quantitative studies in Chapter 2 established a robust groundwork leading into Chapter 3. In Chapter 3, the specific research questions, design, and methodology are presented.



## CHAPTER 3. RESEARCH METHODOLOGY

The goal of this chapter is to discuss the research methodology and methods used in this study. The research purpose, questions, and rationale for the chosen survey methodology are described first. Next, the research design is presented, followed by the study instruments, sampling method and participant selection, data collection approach, validation and reliability of the instruments, and data analysis methods.

A quantitative methodological approach was applied to investigate (a) whether higher vocational education (HVE) English as a foreign language (EFL) students' well-being was related to their language mindsets; (b) whether their well-being, growth language mindset (GLM), and English performance (i.e., College English Test [CET] 4 scores) were correlated; and (c) whether demographics differed regarding well-being, language mindset, and English performance (i.e., CET 4 scores). The research questions were developed to address a gap in positive psychology research regarding Chinese vocational EFL learners. Therefore, this study specifically answered the following research questions:

RQ1: What, if any, is the relationship between EFL students' well-being level, language mindsets, and CET 4 scores?

RQ2: What, if any, is the relationship between EFL students' well-being profiles (i.e., positive emotions, engagement, relationship, meaning, accomplishment, negative emotion, and physical health), language mindsets (i.e., growth or fixed) in terms of their beliefs (i.e., general language intelligence beliefs, second language aptitude beliefs, and age sensitivity beliefs about language learning), and CET 4 scores?

RQ3: What, if any, is the relationship between well-being level, and CET 4 scores among three different composite language mindset groups?

RQ4: What are the possible demographic differences (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times) in terms of CET 4 scores, well-being scores, and language mindset scores?

### **Survey Methodology**

Survey methodology is “a systematic method of gathering information from (a sample of) entities to construct quantitative descriptors of the attributes of the larger population of which the entities are members” (Groves et al., 2009, p. 2). It is used to collect self-reported data and describe a particular issue of interest (Dörnyei & Csizér, 2011; Paltridge & Phakiti, 2015). Additionally, it is viewed as “a non-experimental research method used to learn about the occurrence and distribution of variables in a predetermined population, as well as the relationships between them” (Coughlan et al., 2009, p. 1). A survey gathers relevant information from respondents related to specific settings or elements to determine relationships among variables (Dörnyei, 2007; Nunan & Nunan, 1992). Therefore, it is important to obtain indirect first-hand information about the incidence of events and participants’ characteristics, beliefs, attitudes, and behaviors (Coughlan et al., 2009; Mackey & Gass, 2015).

With a long history and extensive application, survey research is easily found in diverse circles (e.g., social science, natural science) and research types. Its oldest application in the social sciences can be traced back more than 2,000 years ago when Caesar Augustus reasoned a tax system on ancient Rome (Coughlan et al., 2009). More recently, from 1889–1903, Charles Booth conducted a modern survey of life and work problems in London by interviewing and observing people (Groves et al., 2009). In 1912, Bowley conducted a comprehensive social survey in England (de Heer et al., 1999). The government-led census in the United States, written in the U.S. Constitution to be administered every 10 years, was the first example of a

systematic survey (Groves et al., 2009). The census provided researchers with alternatives to conducting quantitative, qualitative, cross-sectional, or longitudinal research through questionnaires or structured interviews (Dörnyei, 2007).

Along with technological development, survey research methods have evolved from face-to-face interviews in the 1950s to telephone interviews in the 1970s and on to computer-assisted surveys in the 1980s and 1990s (de Heer et al., 1999; Dillman et al., 2014). As a result of these technological developments, the online questionnaire has stepped into the spotlight. It gradually became the most beneficial survey tool because of its high participation rate, fewer nonresponses and measurement errors, and higher quality of results (Groves et al., 2009). This benefit is especially true in the social sciences; with scientific inquiry, valid and reliable data can be systematically gathered (Dörnyei & Taguchi, 2010). More importantly, in the applied linguistic education, survey questionnaires have contributed to accessible viewpoints, allowing language researchers to analyze students' behaviors, attitudes, feelings, beliefs, learning processes, and more, which has far-reaching implications for language pedagogy and educational policy reform (Brown, 2001; Dörnyei, 2020). Furthermore, survey questionnaires have equipped linguistics researchers with sufficient measurements (i.e., factual, behavioral, and attitudinal data), in accordance with Dörnyei (2007). More specifically, factual data are primarily represented through demographics and behavioral data, and refer to the habitual behaviors and lifestyles of participants. Attitudinal data include the participants' thinking content, attitudes, opinions, interests, and values (Dörnyei, 2007). Accordingly, with the diverse data being collected, new concepts and phenomena can be understood via survey research, including phenomena that cannot be explored directly (Csizér & Simon, 2022), which has laid a foundation for foreign

language learning (i.e., the learner's situation, personality traits, attitudes, emotions, beliefs, and performance).

The ubiquity of the Internet has optimized survey research by minimizing the strain on face-to-face contact, improving the accuracy and anonymity of respondents' responses (Dillman et al., 2014), offering a handy tool for considerable sample research inexpensively, administering data collection more effortlessly (Coughlan et al., 2009; Granello & Wheaton, 2004; Umbach, 2004), and gathering a substantial and varied sample globally. Therefore, survey methods increase the ecological validity and accuracy of the research (Dörnyei, 2007; Phakiti et al., 2018). Moreover, researchers can adapt and develop unique research instruments, such as questionnaires, for generating diverse measurements efficiently and accurately (Paltridge & Phakiti, 2015).

### **Research Design and Methods**

Because the quality and representativeness of a sample size affects how well the results can be generalized to a larger population (Vogt, 2007), a specific group of participants in the situation analyzed should be targeted (Paltridge & Phakiti, 2015). Considering the influence of long-time online learning during the COVID-19 global pandemic, Chinese undergraduates experienced severe language anxiety and psychological problems (e.g., stress, depression). Compared with college students in comprehensive universities, HVE students had higher level of anxiety during the pandemic, which greatly correlated with mental well-being (Fan & Liu, 2022; C. Li & Dewaele, 2021; Y. Li et al., 2021). Particularly noteworthy were the HVE students enrolled in private vocational universities during the postpandemic period in China. Therefore, this study aimed to conduct among students at private vocational and technical universities in China to investigate EFL students' well-being, language learning mindset, and their relationship

with English performance. The methodological design of this research was constructed using the theoretical frameworks of Seligman's (2012) well-being theory and Lou and Noels's (2017) language mindset theory.

### **Instruments**

Two instruments, the PERMA-Profiler and the Language Mindsets Inventory (LMI), have been used to investigate Chinese EFL learners' well-being and language learning mindsets (i.e., growth or fixed; Butler & Kern, 2016; Lou & Noels, 2017). In accordance with the research questions, the dependent variables included (a) eight well-being variables (i.e., positive emotion, engagement, relationship, meaning, accomplishment, overall well-being, negative emotion, and physical health) from the PERMA-Profiler; (b) six language mindset variables (e.g., general language intelligence beliefs [GLB], second language aptitude beliefs [L2B], age sensitivity beliefs [ASB] about language learning), each of which had two types (i.e., growth or fixed); (c) seven demographic variables (i.e., gender, year of study, future degree, hometown locale, family planning, accommodation, and CET 4 times); and (d) CET 4 scores. To achieve the aforementioned data, the following instruments were used in the current study.

#### ***PERMA-Profiler***

Based on Seligman's (2018) five domains of PERMA theory, Butler and Kern (2016) developed the PERMA survey and chose 15 PERMA items out of 199 items with three items per domain (i.e., positive emotion, engagement, relationship, meaning, and accomplishment). Then, to supplement and complete the 15 items, Butler and Kern (2016) introduced eight more items in it, including one overall health, three negative emotion items, three physical health items, and one loneliness item, forming a 23-item scale called the PERMA-Profiler. It is a multidimensional model for exploring the well-being and flourishing of individuals in multiple psychological

domains using an 11-point Likert scale (Butler & Kern, 2016). Over the years, the PERMA-Profiler has been translated into Spanish, Korean, Japanese, Chinese, Czech, Danish, Polish, and Turkish and is publicly available online at [www.authentic happiness.org](http://www.authentic happiness.org).

PERMA theory has been well-tested regarding the construction and measurement of well-being (Butler & Kern, 2016; Goodman et al., 2017; Seligman, 2011). In terms of measuring well-being, the reliability and validity of the PERMA-Profiler has been recognized by researchers worldwide (de Carvalho et al., 2021) and China is no exception. L. Yang and Saad (2020) achieved satisfactory validity and reliability with Cronbach's alpha over .70 via exploratory factor analysis and confirmatory factor analysis (CFA), providing evidence for the broad application of the PERMA-Profiler to study foreign language learners in Chinese universities.

The reliability and validity of the Chinese version of the PERMA-Profiler has also been confirmed with satisfactory results. In a study by Lai et al. (2018), the results showed the Cronbach's alpha score for the PERMA-Profiler was .95. The scores for the subdomains of positive emotions ( $\alpha = .89$ ), engagement ( $\alpha = .76$ ), relationship ( $\alpha = .77$ ), meaning ( $\alpha = .89$ ), and accomplishment ( $\alpha = .81$ ) suggested an excellent internal consistency of PERMA-Profiler, which has been validated and applied among Chinese participants.

### ***LMI***

Inspired by Dweck's (2012) mindset (i.e., implicit) theory, Horwitz's (1988) language belief study, and Mercer and Ryan's (2009) qualitative findings, Lou and Noels (2017) detailed three central beliefs regarding foreign language learners: (a) GLB, resonating with Dweck's mindset theory (i.e., fixed mindset or growth mindset); (b) L2B, referring to beliefs about language learning ability (i.e., cannot be improved or can be improved with effort); and (c) ASB

about language learning (i.e., whether the language learning ability is fixed by a certain age). With three growth-thinking questions, three fixed-thinking questions for each belief on language learning, and a 6-point Likert scale ranging from *strongly disagree* to *strongly agree*, the final 18-item LMI came into being.

To demonstrate the reliability and validity of the LMI, Lou and Noels (2017) conducted two studies of language learners at North American universities. In the first study, the internal correlations between the three central beliefs and two types of thinking (i.e., incremental and entity) during language learning were demonstrated by CFA, and the covariances between the relevant factors was conducted using a hierarchical CFA (Lou & Noels, 2017). The validity of the relationships was corroborated by the known groups' techniques. Thus, excellent internal consistency and good validity of the LMI could be achieved. Subsequently, Lou and Noels conducted similar research on language learners at the same university; CFA confirmed the internal consistency between entity items, incremental items, and combined items with Cronbach's alphas of .83, .88, and .92, respectively.

Further, based on Lou and Noels's (2017) study, Y. Yao et al. (2021) collected data from 646 Chinese high school students to demonstrate the reliability and validity of the LMI for a sample of Chinese EFL learners. In their study, the CFA showed all subdimensional (i.e., GLB, L2B, and ASB) Cronbach's alpha coefficients of the LMI sufficed to prove the minimum value of .70 proposed by Dörnyei (2007) in linguistic research. Respectively, the GLB (i.e., growth and fixed) exceeded the Cronbach's alpha minimums with values of .83 and .85, the L2B (i.e., growth and fixed) met or exceeded the minimum with Cronbach's alphas of .70 and .81, and the ASB (i.e., growth and fixed) exceeded the minimum with Cronbach's alpha's of .80 and .83.

## **Translation, Adaptation, and Validity**

The two questionnaires used in this study (i.e., the PERMA-Profiler and the LMI) can be found in Appendix A and B. Applying instruments in a cross-cultural context involves translation, adaptation, and validation (Borsa et al., 2012). Because preparation before translation is necessary (Wild et al., 2005), the instruments typically undergo a four-stage check: pretranslation preparation, translation, cultural adaptation, and validation.

### ***Pretranslation Preparation***

In the pretranslation phase, it was required to obtain the original developers' permission, explain the concepts involved, and recruit in-country experts before translation (Wild et al., 2005). The current study included two English questionnaires (i.e., the PERMA-profiler and the LMI). As for the Chinese version, the PERMA-Profiler is available on the official website, which has been translated by experts and widely applied and validated in the Chinese context among Chinese adults (University of Pennsylvania, 2015). Regarding the LMI, the copyright permissions were obtained from the scale developers Lou and Noels (2017) and Y. Yao et al. (2021), who presented and validated the Chinese version of the LMI.

### ***Translation***

Initially, no modifications were introduced to the translation of the PERMA-Profiler because it was translated effectively and applied successfully among Chinese participants (L. Yang & Saad, 2020). However, minor translational changes have been made to the Chinese version of the LMI. Because the participants in Y. Yao et al.'s (2021) study were junior high school students in China, the authors changed the words "adult" and "adulthood" to "a certain point of time" in Chinese. However, considering the participants in the current study were university students, the words "a certain point of time" in the ASB subdomain were reversed to



the original ones of “adult” and “adulthood.” Moreover, in consideration of Y. Yao et al.’s (2021) pilot feedback, the word “change” confused Chinese students, and the word “improve” replaced it, so the same approach was adopted in the current study.

### ***Cultural Adaptation and Validation***

As for adaptation and validation of the LMI, in Y. Yao et al.’s (2021) study, the LMI translation was done by one of the researchers and the back translation was conducted by a Chinese professor who instructed English translation classes for many years in China. In addition, Y. Yao et al. conducted a pilot before distributing the surveys, revised the translation, and validated the Chinese version of the LMI structure via CFA, with moderate and acceptable model fit indices,  $X^2(126) = 474.887, p < .001, CFI = .935$ . Therefore, the adaptation and validation of the Chinese LMI were achieved.

### **Sampling, Sample Size, and Participants**

Based on the design, the current study was performed at a private vocational and technical university in Shanghai, along with the launch of the National Vocational Education Reform Implementation Plan (China State Council, 2019). A random sampling including all the students in one HVE University was applied.

Considering the generalizability of a sample, the sample size should be adequate (Pallant, 2016). In the social sciences, Nunnally (1978) advised 10 cases for each item to obtain reliable findings and Stevens (1996) held that approximately 15 participants are needed for each variable. Following an analysis of the questionnaire items in this study, there were three sections of the study: (a) the PERMA-Profilier with 23 items, (b) the LMI with 18 items, and (c) demographics (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times). According to Tabachnick and Fidell (2014), who suggested researchers

calculate the required sample size using the following formula:  $N > 50 + 8m$  (where  $m$  is the number of independent variables). Thus, the ideal sample size for the current study was around 250 considering the amount of the independent variables were around 25.

Furthermore, considering the widespread use of Likert scales in the fields of education and psychology, as documented in studies by Bjorner et al. (2003), Bolt et al. (2004), and Scherbaum et al. (2006), S. Jiang et al. (2016) delved into the factors influencing parameter recovery in multidimensional graded response modeling. This exploration involved evaluating the recovery quality using actual parameters and the correlation between predicted parameters, bias, and root mean square error. The results indicated that, in most cases, a sample size of 500 would produce accurate parameter estimates. However, for a 240-item test, a larger sample size of 1,000 individuals was necessary to obtain valid parameter values. Remarkably, increasing the sample size beyond 1,000 did not enhance the accuracy of multidimensional graded response modeling parameter estimates. A sample size higher than 500 should be the benchmark for the current study on psychology and education. I have gathered a sample size higher than 1,000 ( $n = 1,958$ ) in the target Z University, which could rationalize the sample size requirement for the study.

At Z University, students for all grades were asked to complete the online questionnaire, which included the PERMA-Profilier and LMI scales, via clicking a link or scanning a QR code of the survey provided by the counselors in their department. Participants were surveyed online concerning well-being status (i.e., positive emotions, engagement, relationship, meaning, accomplishment, overall well-being, negative emotion, and physical health) and language mindsets (i.e., growth or fixed) regarding GLB, L2B, and ASB on language learning belief, CET

4 scores, and demographics (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times).

### **Validation and Reliability**

In quantitative research, two critical criteria need to be investigated rigorously: instrument validity and reliability. Validity is the degree to which the concept is precisely quantified and reliability is the extent to which the instrument could constantly generate the same results under repeated circumstances (Heale & Twycross, 2015). In this section, the validity and reliability of the instrument are verified (see Appendix C).

#### **Reliability of the Instrument**

In this study, the Cronbach's alpha measures of each factor and the overall Cronbach's alpha of all variables were calculated in the Statistical Package for the Social Sciences (SPSS) Version 29 to check the scale's reliability (see Tables 6–10). The study consisted of two instruments: the PERMA-Profilers scale on general well-being and the LMI scale on language mindsets. In the PERMA-Profilers part, the Cronbach's alpha coefficients were .895, .836, .857, .891, .898, .973, .836, and .914, respectively, with an overall Cronbach's alpha for PERMA-Profilers ( $n = 23$ ) of .965. Because all values were above .80, they represented excellent reliability of the survey instrument. In the LMI part, the Cronbach's alphas from the six dimensions (i.e., GLB fixed, GLB growth, L2B fixed, L2B growth, ASB fixed, and ASB growth) were .893, .950, .853, .913, .910, and .947, respectively. A value of .941 was obtained for the fixed language mindset (FLM) and an overall value of .954 was obtained for GLM, leading to an overall Cronbach's alpha for the LMI ( $n = 18$ ) of .940. The overall Cronbach's alpha for the 41-item instrument (i.e., the PERMA-Profilers and the LMI) was .965, with the Cronbach's alpha for the PERMA-Profilers of .913 and the LMI of .900, respectively.

Moreover, according to DeVellis (2016), a Cronbach's alpha score above .80 represents good internal consistency reliability. A Cronbach's alpha of 1 is the strongest reliability (Urdan, 2022). Therefore, all the dimensions had a Cronbach's alpha over .80, signifying the criteria for internal consistency. Additionally, the overall Cronbach's alpha for the 41-item instrument of .965 suggested relatively strong reliability among 1,297 respondents.

### **Validation of the Instrument**

According to Streiner et al. (2015), the three Cs of content, criterion, and construct validity is the rule of thumb for checking the validity of a survey instrument. Therefore, the following validity tests were performed in terms of content validity, criterion validity, and construct validity (Landy, 1986; Pallant, 2016; Streiner et al., 2015) for the instrument used in this study.

#### ***Content Validity***

The adequacy of the coverage was achieved with a sample size of over 1,000 ( $n = 1,297$ ). Using SPSS Version 29, a Kaiser-Meyer-Olkin (KMO) measure of .964 was calculated for the 41-item scale (i.e., the PERMA-Profilier and the LMI; see Table 3), in which the KMO of .967 (see Table 1) for the PERMA-Profilier and .928 (see Table 2) for the LMI were obtained. Because excellent adequacy ( $KMO \geq .9$ ) was achieved for all the factors, including a Bartlett's test of sphericity of less than .001, the factorial analysis could be continued (Nievas Soriano et al., 2020).

#### ***Criterion Validity***

In the survey, Questions 1–11 were the demographic questions, followed by the PERMA-Profilier scale (i.e., Questions 12–34) and the LMI (i.e., Questions 35–37). Items from Questions 12–34 falling under the PERMA-Profilier scale measured the general well-being of the

participants (see Appendices A and B). Compared with the original PERMA-Profiler scale with the Cronbach's alpha of .88 (C. Chen & Cho, 2022), the Cronbach's alpha of PERMA-Profiler in this study achieved .965, which was a better result.

Meanwhile, Questions 35–37 falling under the LMI scale achieved a Cronbach's alpha of .94 with the Cronbach's alpha of .941 for FLM and of .954 for GLM, much higher than the original developer Lou and Noels's (2017) Cronbach's alpha, respectively, of .82 for FLM and of .90 for GLM. In detail, this study presented Cronbach's alphas between .853 and .950 for each subdimension (i.e., GLB fixed, GLB growth, L2B fixed, L2B growth, ASB fixed, and ASB growth), and the subdimensional Cronbach's alpha in the Chinese LMI ranged from .70 to .85 (Y. Yao et al., 2021), suggesting a better result in the current study. More importantly, in this study, the Cronbach's alpha of the whole scale, covering the PERMA-Profiler and the LMI, achieved .965, which greatly outperformed the former results. Thus, the scale in this study enjoyed tremendous and higher validity.

### ***Construct Validity***

To check the main variable components of the new instrument, the principal axis factoring was performed underlying 41 items, and five main domains were identified, accounting for 70.47% of the variance. Then, the factor loadings were greater than .50, ensuring there were no cross loadings. After that, based on the following scree plot (see Figure B1), variance loadings, and the rotation matrix, four dimensions of the 41-item instrument were achieved. Given the dimensions presented by the original scale developers, the new dimensions were almost the same, except the separate health dimension was included in the overall well-being dimension, resonating with the research presented by Diener and Chan (2010), holding that good physical health and longevity means a higher level of well-being.

Therefore, four constructs in this study underlying the 41-item scale were generated: (a) overall well-being (e.g., PERMA, happiness, health) with a Cronbach's alpha over .598, (b) negative factors (e.g., negative emotions, loneliness) with a Cronbach's alpha over .742, (c) FLM (e.g., GLB fixed, L2B fixed, ASB fixed) with a Cronbach's alpha over .690, and (d) GLM (e.g., GLB growth, L2B growth, ASB growth) with a Cronbach's alpha above .657. The global Cronbach's alpha for the 41-item instrument was .965, suggesting a solid internal consistency reliability (Urda, 2022). Therefore, excellent validity and reliability of the 41-item instrument was achieved.

### **Data Collection Procedures**

After approval from the Human Research Ethics Committee of the target university and Institutional Review Board were confirmed, the electronic questionnaires were distributed to the counselors across the university. At the same time, they were informed of the research topic, purpose, and content to obtain their full support for survey distribution. After that, with the help of counselors, the questionnaire link and QR code were sent to the respondents via WeChat, a well-known and popular social and workplace platform in China. Respondents could access the questionnaire via phones, iPads, or computers, and the participating window lasted for the following 4 weeks. With the informed consent on the cover page of the questionnaire, participants could voluntarily choose to opt in or out of the survey. After 4 weeks of data collection, SPSS Version 29 was used to process the data, during which all anonymous data were confidentially filed, analyzed, and processed.

In light of the research questions of this study, the translated online questionnaire, incorporating the PERMA-Profilier scale, the LMI scale, and the CET 4 scores, collected the independent variables of well-being (i.e., positive emotion, engagement, relationship,

meaning, accomplishment, overall well-being, negative emotion, and physical health), language mindset (i.e., GLB, L2B, and ASB about language learning), the dependent variables of EFL students' latest CET 4 scores, and the demographics (i.e., gender, future degree, hometown locales, family planning, accommodation, and CET 4 times).

### **Data Analysis**

With the groundwork of the research methodology firmly established, the focus shifts to the heart of this study—the comprehensive analysis of the amassed data. Generally speaking, correlation coefficients are a widely used research method in social science to investigate linear relationships among multiple variables, especially the Pearson product-moment correlation coefficient (Pallant, 2016; Urdan, 2022). According to Pallant (2016), at the initial stage of data analysis, the correlation method can provide researchers with scatterplots to help understand the general relationship between independent and dependent variables, examine sample information (i.e., missing data or outliers), explore the distribution of the sample, and determine the direction and strength of the relationship between variables. In the data analysis phase, various research methods under the variable properties could explicitly be adopted. Specifically, when the assumed relationship between variables is linear, the Pearson coefficient could be used; when the relationship between variables is monotonic but not necessarily linear, the Spearman rho could be applied. Nonetheless, when analyzing the association between two binary variables, the cross-tabulation analysis of phi coefficients could be used; when the correlations between one discrete numerical outcome and one continuous variable are investigated, the point-biserial correlation would be applied (Urdan, 2022).

In a study where variables are continuous, Pearson correlation can be conducted, and the presented Pearson's  $r$  represents the strength of correlations ranging from -1 to 1. When  $r$  is less than .2, two variables are said to not be correlated; when  $r$  is between .2 and less than .5, the same two variables are moderately correlated; and when  $r$  is greater than or equal to .5, the two are strongly correlated (Urdan, 2022). However, considering that Pearson's  $r$  alone is insufficient to describe the variable relationships, the coefficient of determination (i.e.,  $r^2$  value) could further verify the relationship by revealing how much variation in one variable's scores can be interpreted by the others (Urdan, 2022). In other words, effect size and the absolute value of the correlation coefficients represent the strength of correlations as a weak correlation ( $r = .1$ ), a moderate correlation ( $r = .3$ ), or a large correlation ( $r = .5$ ; J. Cohen, 2013). Additionally, in the education circle, by gauging the strength of variable correlations, the effect size endows the practical significance among different variables by calculating the size of the difference between groups (Maher et al., 2013).

### **Correlation and Comparison Methods**

With the benefit of hindsight, the literature presented in Chapter 2 demonstrated correlations, factor analysis, hierarchical multiple regression, and structural equation modeling are widely used in PERMA-Profilers and LMI studies. Given the purpose of the current study was to investigate the relationship between well-being levels (i.e., a continuous variable), language mindsets (i.e., a continuous variable), and English achievement (i.e., CET 4 scores, a continuous variable), correlation methods were applied to this research to investigate the relationships between participants' well-being, language mindset, and English performance (i.e., CET 4 score).



Comparison by groups is another method for including categorical demographic variables (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times) in a correlational analysis. By comparing the differences in CET 4 scores, well-being scores, and language mindset scores, the mean differences among various demographic groups are tested for statistical differences. In addition to the magnitude of these group differences and the overall effect size of the group comparison, other group comparison methods, such as partial correlation analysis and analysis of variance, could be used when the distributions are normally distributed. Because the distributions of continuous variables in this study were nonnormal, the Mann-Whitney U test (i.e., comparison for two groups), and the Kruskal-Wallis test (i.e., comparison for three or more groups) were applied to compare the means among the different groups. Similarly, when the ranks of groups differed significantly, the magnitude of the differences were verified by conducting the post hoc tests and calculating the effect size (Pallant, 2016).

### **Ethical Considerations**

After the approval for this study was authorized by the Z University's Ethical Review Board and the Chapman University Institutional Review Board, the data collection began and lasted 4 weeks. Given the study aimed to benefit HVE EFL learners, it was crucial to avoid and exclude all possibilities of risk while respecting each participant. Participants received an informed consent agreement form, which was on the cover page of the questionnaire, containing the research topic, research purpose, research content, and the option to decline the survey. All collected data were kept anonymously in digital files and stored on the Chapman University cloud server, with access shared only with the dissertation committee as appropriate.

The principles of respecting the participants, benefiting them, and remaining impartial (Terrell, 2022) were strictly followed during the whole process. More importantly, throughout the entire survey implementation process, counselors from each college were solely responsible for distributing the survey links so participants voluntarily joined the study without any coercion or pressure. Moreover, even after clicking the link and getting access to the survey, participants retained the autonomy to withdraw from the survey at any time without providing a reason or without facing any consequences.

Although this research involved the assessment of participants' subjective psychological experiences and thinking patterns, potential psychological risks related to psychology-related issues were addressed successfully during the questionnaire translation and revision stage. Furthermore, considering the potential stigma mindset among participants in HVE, before the survey was issued, a pilot study focusing on translation of the questionnaire was conducted, and the researcher made slight modifications and improvements in the demographic section based on feedback and suggestions from a random sample of participants, done to avoid putting pressure and anxiety on participants regarding certain private matters. Hence, the participants were virtually free from any potential threats in any scenario. Moreover, the researcher's personal contact information on the survey enabled participant follow-up inquiries and expressed concerns to the participants at the same time. To conclude, this study conformed to the ethical standards and guidelines outlined by the American Psychological Association.

### **Chapter Summary**

This chapter addressed the quantitative research design that was employed to address the research questions. Targeting a population of EFL students in an HVE university, a random sampling of 1,958 participants were employed as a representative sample, and the description of

the sampling adequacy and sample size were rationalized. Data were collected using the PERMA-Profiler and the LMI, and the validation and reliability of the survey were ensured. At the same time, the data collection process, including the translation, were conducted to ensure the consistency and accuracy of the data acquisition. The Chinese social media platform, WeChat, and the data collection platform, Wenjuanxing, were used before the data were analyzed via SPSS Version 29.

Further, to figure out the correlations among well-being, language mindset, and CET 4 scores, parametric or nonparametric analysis methods were used. Although limitations of self-reported CET 4 scores should not be ignored, the ethical considerations were strictly followed to protect participants in a proper manner. As the design unfolded in this chapter, it provided foundation for Chapter 4 to discuss the data analyses and corresponding findings further based on each research question.

## CHAPTER 4. DATA ANALYSIS AND RESULTS

The purpose of this chapter is to summarize and present the analysis results based on the research questions explored in this study. The problem statement, research questions, and corresponding research methods are restated. Then, preliminary analyses, assumption tests, and primary analyses of the results follow. Additionally, tables and graphs pertaining to the analysis results are presented in each section for further clarification.

### Research Purpose and Research Questions

In the background information about modern China presented in Chapters 1 and 2, it was claimed that stress, anxiety, and depressive symptoms were prevalent and severe among Chinese college students (Y. Li et al., 2021). However, when compared with other college students in China, the well-being among Chinese higher vocational students experiencing more inherent disadvantages due to the system and family status need more attention (Ling et al., 2023; E. Xue & Li, 2022; X. H. Zhang, 2019). Thus, to investigate whether higher vocational education (HVE) English as a foreign language (EFL) students' well-being, growth language mindset (GLM), and English performance (i.e., College English Test [CET] 4 scores) correlated and whether participants' demographic differences regarding well-being, language mindset, and English performance (i.e., CET 4 scores) were imminent, the corresponding analyses based on the following research questions were conducted:

RQ1: What, if any, is the relationship between EFL students' well-being level, language mindsets, and CET 4 scores?

RQ2: What, if any, is the relationship between EFL students' well-being profiles (i.e., positive emotions, engagement, relationship, meaning, accomplishment, negative emotion, physical health), language mindsets (i.e., growth or fixed) in terms of their

beliefs (i.e., general language intelligence beliefs, second language aptitude beliefs, and age sensitivity beliefs about language learning), and CET 4 scores?

RQ3: What, if any, is the relationship between well-being level, and CET 4 scores among three different composite language mindset groups?

RQ4: What, if any, is there any demographic difference (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times) in terms of CET 4 scores, well-being scores, and language mindset scores?

### **Preliminary Analysis**

Prior to conducting the main analysis for this study, a preliminary analysis was performed to provide an overview of the sample characteristics and demographics of the participants.

Descriptives (i.e., mean, range of scores, standard deviation, skewness, and kurtosis) and explore analyses (i.e., confidence interval) were presented to understand better the independent variable of academic performance (i.e., CET 4 scores) and the dependent variables, including psychological levels (e.g., well-being level, negative emotions, language mindset scores), and demographics (i.e., number of subjects, year of study, gender, hometown locales, only child, accommodation, future degree, and CET 4 times).

Before that, background information of the only dependent variable (i.e., CET 4 scores) is mentioned. To protect and respect participants' privacy and choice, the survey question on CET 4 scores (i.e., Question 11) was the only self-reported data. In accordance with the National College English Testing Committee of China, the reported score range for CET Band 4 should be from 220–710 (H. Wang et al., 2023; Z. Yao et al., 2023). Some of the self-reported data in the current study fell outside this range. As a result, the out-of-range values of each continuous variable could have influenced the accuracy of the original data (Tabachnick & Fidell, 2014). To

guarantee the study's accuracy, the CET 4 scores that were out of range were excluded from analysis via the select cases in data option in the Statistical Package for the Social Sciences (SPSS) Version 29. Of the 2,206 students, 248 (11.24%) declined to participate in the questionnaire; therefore, 1,958 students participated with a response rate of 88.76%. Moreover, out of the 1,958 questionnaire participants, the number of valid CET 4 score entries (i.e., 220–710) was 1,030, among which 928 participants were excluded from the descriptive statistics analysis and the following analysis steps owing to their invalid CET 4 scores (i.e., less than 220 or greater than 710). Following the recoding of CET 4 scores, a descriptive analysis on each of the demographics variables was accomplished based on the cleaned data file with all the CET 4 scores in the range of 220–710.

The sample ( $n = 1,030$ ) contained 683 women (66.3%) and 347 men (33.7%), among which the majority of participants (55.8%) spent 2 years in this university ( $n = 575$ ), following 33% of the participants who just began their study in this university (see Table 5). As for the hometown locales, there was a relatively small difference among rural ( $n = 339$ ), suburban ( $n = 314$ ), and urban participants ( $n = 377$ ). Among all the participants, 54.2% ( $n = 558$ ) were only children in their family, about 1.18 times of the non-only-child group ( $n = 472$ ), and the majority (96.1%) of them were living in the dormitory. Concerning future degrees, the bachelor-degree achievers ( $n = 503$ ) were on par with the associate-degree achievers ( $n = 527$ ). Regarding the number of times students took the CET 4, 71.3% of students only took it once.

**Table 5***Descriptives of Demographics*

Variables	Description	Frequency	%
Year of Study	First	340	33
	Second	575	55.8
	Third	105	10.2
	Four or more	10	1
Gender	Female	683	66.3
	Male	347	33.7
Hometown Locales	Rural	339	32.9
	Suburban	314	30.5
	Urban	377	36.6
Only Child	Only Child	558	54.2
	Not Only Child	472	45.8
Accommodation	Border	990	96.1
	Commuter	40	3.9
Future Degree	Bachelor	451	43.8
	Top-up	52	5
	Associate	527	51.2
CET 4 Times	1 <sup>st</sup>	737	71.3
	2 <sup>nd</sup>	230	22.3
	3 <sup>rd</sup>	48	4.7
	4 <sup>th</sup> or more	18	1.7

Note. ( $n = 1,030$ ).

Besides demographics, academic performance (i.e., CET 4 scores) and psychological levels (e.g., well-being level, negative emotions, language mindset scores) are mentioned. According to Table 6, participants' CET 4 scores spanned 220–710 with a mean of 413.48, lower than the official CET 4 passing line of 425 ( $SD = 77.58$ , 95%,  $CI[408.73, 418.22]$ ). The well-being ranged from 1–11 with the mean score of 8.02, signifying a higher level of well-being ( $SD = 1.79$ , 95%,  $CI[7.92, 8.13]$ ). The negative emotions, ranging from 1–11, achieved a mean of 6.92, suggesting a somewhat high level of negativity ( $SD = 2.15$ , 95%,  $CI[6.79, 7.05]$ ). The GLM enjoyed a higher average score of 4.43 ( $SD = .92$ , 95%,  $CI[4.38, 4.49]$ ) than the mean fixed language mindset (FLM) score of 3.85 ( $SD = 1.11$ , 95%,  $CI[3.78, 3.92]$ ), so the composite

language mindset score, calculated by subtracting the GLM score from the FLM score (Lou & Noels, 2017), varied from -2.5 to 2.33, with a mean of -2.9.

**Table 6**

*Descriptives of Independent and Dependent Variables*

Variable	Components	Mean	SD	Minimum	Maximum	95% CI for mean	
						Lower	Upper
CET 4		413.48	77.58	220	710	408.73	418.22
Well-being		8.02	1.79	1.00	11.00	7.92	8.13
Negative emotions		6.92	2.15	1.00	11.00	6.79	7.05
Language mindset		-.29	.59	-2.50	2.30	-.33	-.26
	Fixed language mindset	3.85	1.11	1.00	6.00	3.78	3.92
	Growth language mindset	4.43	.92	1.00	6.00	4.38	4.49

*Note.* ( $n = 1,030$ ).

Specifically (see Table 7), concerning the elements of well-being, relationship enjoyed the highest mean of 8.13 ( $SD = 1.89$ ), and engagement came in last with a mean score of 7.94 ( $SD = 1.83$ ). In terms of the FLM group, the fixed second language aptitude beliefs (L2B) stood out with a mean of 3.99 ( $SD = 1.15$ , 95%,  $CI[2.92, 4.06]$ ). Relatively, the growth age sensitivity beliefs (ASB) came in first with a mean of 4.54 ( $SD = 1.02$ ), along with two equal means of L2B and ASB ( $M = 4.38$ ).



**Table 7***Descriptives of Well-Being, Fixed Language Mindset, and Growth Language Mindset*

Variable	Components	Mean	SD	Minimum	Maximum	95% CI for mean	
						Lower	Upper
Well-being	Positive emotions	8.11	1.93	1.00	11.00	7.99	8.22
	Engagement	7.94	1.83	1.00	11.00	7.83	8.06
	Relationship	8.13	1.89	1.00	11.00	8.02	8.25
	Meaning	7.99	2.01	1.00	11.00	7.87	8.11
	Achievement	7.87	1.96	1.00	11.00	7.75	7.99
	Health	8.07	2.06	1.00	11.00	7.95	8.20
Fixed language mindset	Fixed GLB	3.75	1.30	1.00	6.00	3.67	3.83
	Fixed L2B	3.99	1.15	1.00	6.00	3.92	4.06
	Fixed ASB	3.82	1.25	1.00	6.00	3.74	3.89
Growth language mindset	Growth GLB	4.38	1.06	1.00	6.00	4.31	4.44
	Growth L2B	4.38	1.01	1.00	6.00	4.32	4.44
	Growth ASB	4.54	1.02	1.00	6.00	4.48	4.60

*Note.* (n = 1,030).

### Assumption Tests

Before conducting any analyses, the assumption tests, including normality, linearity, and homoscedasticity, were tested (Pallant, 2016). Per Pallant (2016), the descriptive statistics, including mean, standard deviation, range of scores, skewness, and kurtosis, were collected first, among which the skewness and kurtosis were prerequisites for parametric analyses. A skewness, ranging from -1 to 1, indicated symmetry of the distribution, and kurtosis, ranging from -2 to 2, showed the peakedness of the distribution (Tabachnick & Fidell, 2014). When skewness and kurtosis of 0 were sought, a normal distribution was achieved. Nevertheless, the normality tests were advised with a nonsignificant *p* value of more than .05, indicating a normal distribution (Ghasemi & Zahediasl, 2012). Tabachnick and Fidell (2014) also advised researchers to use a

histogram when the participant sample size was over 1,000, as was the case of the current study ( $n = 1,030$ ). Nonetheless, Q-Q plots of a straight line were required to show further normality.

### **Normality**

To achieve the aforementioned statistics, the descriptives and explore features of SPSS Version 29 were applied among all the continuous variables (e.g., CET 4 scores, well-being level, language mindsets scores), and all the results presented (see Table 8). Participants' CET 4 scores ranged from 220–710 ( $\bar{x} = 413.48$ ,  $SD = 77.58$ ), with a positive skewness value (.743) indicating a clustering of scores at the high end, and the positive kurtosis value (2.33) presenting the distribution was rather peaked, with long thin tails (Pallant, 2016); thus, a normal distribution could not be achieved. Follow these analyses, it was determined through normality tests on CET 4 scores (see Table 9) that normality assumption was violated ( $p < .001$ ). Further, the histogram (see Figure 4) and the Q-Q plot (see Figure 5) highlighted the nonnormality as well. Altogether, it was safe to say the normal distribution of CET 4 scores could not be achieved.

**Table 8***Descriptives of CET 4 Scores*

CET 4 scores		Statistic	Std. error
Mean		413.48	2.42
95% CI for mean	Lower bound	408.73	
	Upper bound	418.22	
5% trimmed mean		409.96	
Median		415.00	
Variance		6019.06	
SD		77.58	
Minimum		220	
Maximum		710	
Range		490	
Interquartile range		75	
Skewness		.74	.08
Kurtosis		2.33	.15

*Note.* ( $n = 1,030$ ).

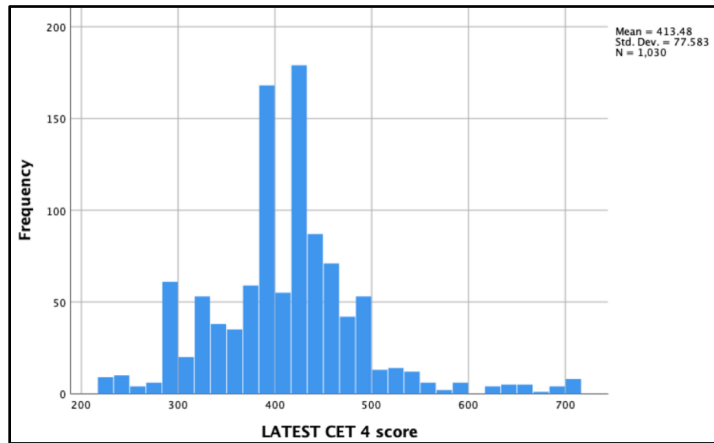
**Table 9***Test of Normality of CET 4*

Latest CET 4 scores	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	<i>df</i>	Sig.	Statistic	<i>df</i>	Sig.
	.083	1030	.000	.947	1030	< .001

*Note.* ( $n = 1,030$ ).

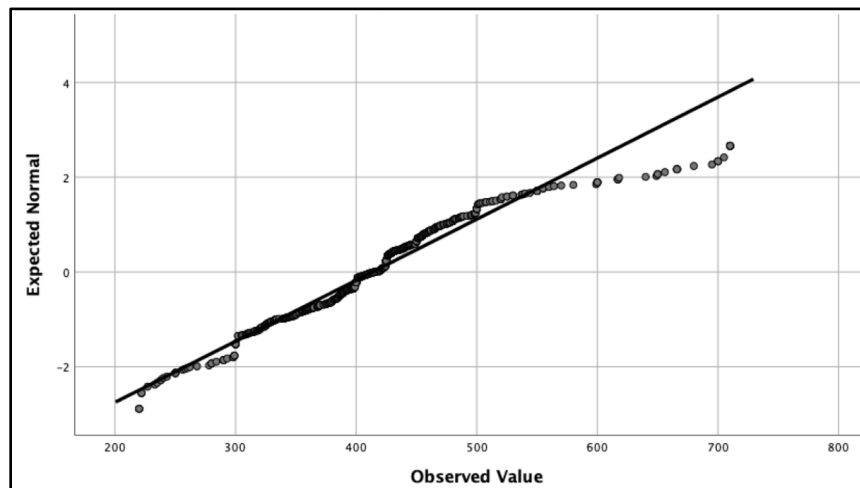
**Figure 4**

*Histogram of CET 4 Scores*



**Figure 5**

*Q-Q Plot of CET 4 Scores*



Likewise, the normality tests of well-being scores (see Tables 10 and 11) and the composite language mindset scores (see Tables 12 and 13) were conducted similarly. The same results indicating a violation of normality were found. Namely, the distribution of all the

continuous variables (e.g., CET 4, well-being, composite language mindset score) were nonnormally distributed. Thus, nonparametric analyses were used in this study (see Figures 6–11).

**Table 10**

*Descriptives of Well-Being*

Well-Being score		Statistic	SE
Mean		8.02	0.56
95% CI for mean	Lower bound	7.91	
	Upper bound	8.13	
5% trimmed mean		8.07	
Median		7.93	
Variance		3.20	
SD		1.79	
Minimum		1.00	
Maximum		11.00	
Range		10.00	
Interquartile range		2.27	
Skewness		-.32	.08
Kurtosis		.79	.15

*Note.* ( $n = 1,030$ ).

**Table 11**

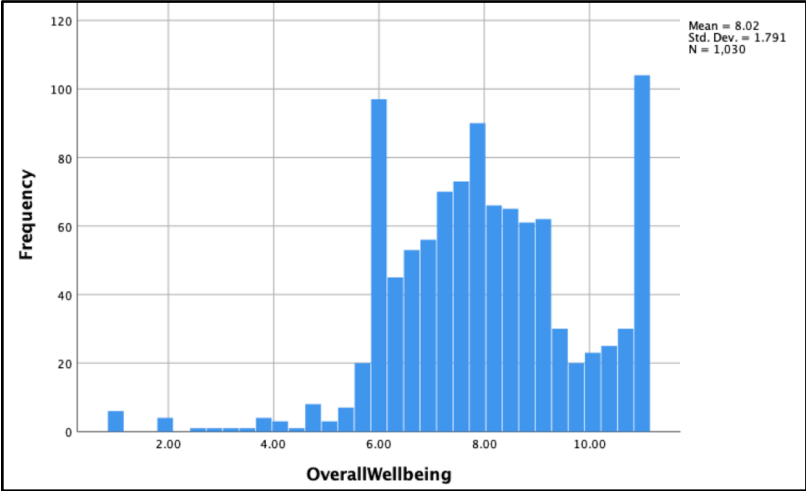
*Test of Normality of Well-Being*

Well-Being	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
	.060	1030	.000	.958	1030	< .001

*Note.* ( $n = 1,030$ ).

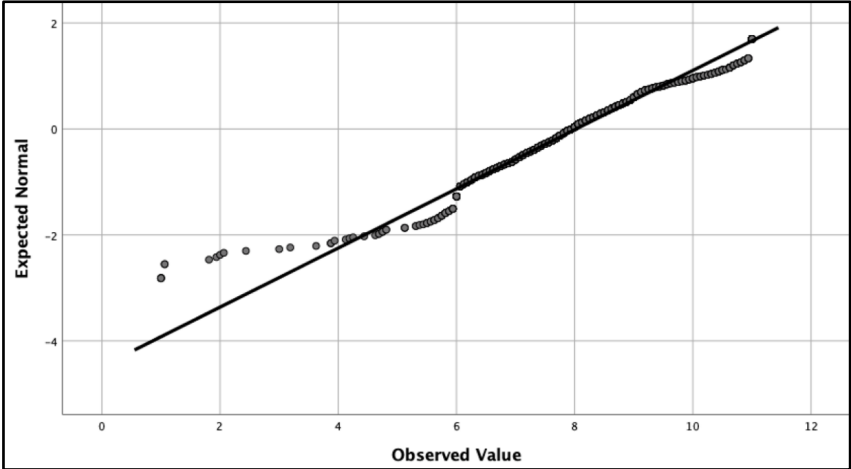
**Figure 6**

*Histogram of Overall Well-Being Scores*



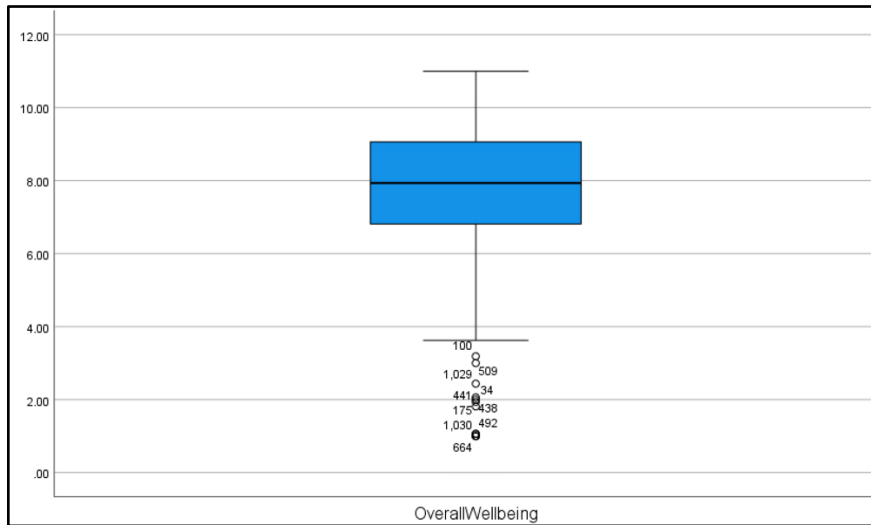
**Figure 7**

*Q-Q Plot of Overall Well-Being Scores*



**Figure 8**

*Boxplot of Overall Well-Being Scores*



**Table 12**

*Descriptive Statistics of Language Mindset Score*

Language mindset score	Statistic	<i>SE</i>
Mean	-.29	2.42
95% CI for mean	Lower bound	-.33
	Upper bound	-.25
5% trimmed mean	-.26	
Median	.00	
Variance	.35	
<i>SD</i>	.59	
Minimum	-2.50	
Maximum	2.33	
Range	4.83	
Interquartile range	.56	
Skewness	-.86	.08
Kurtosis	1.98	.15

*Note.* ( $n = 1,030$ ).

**Table 13**

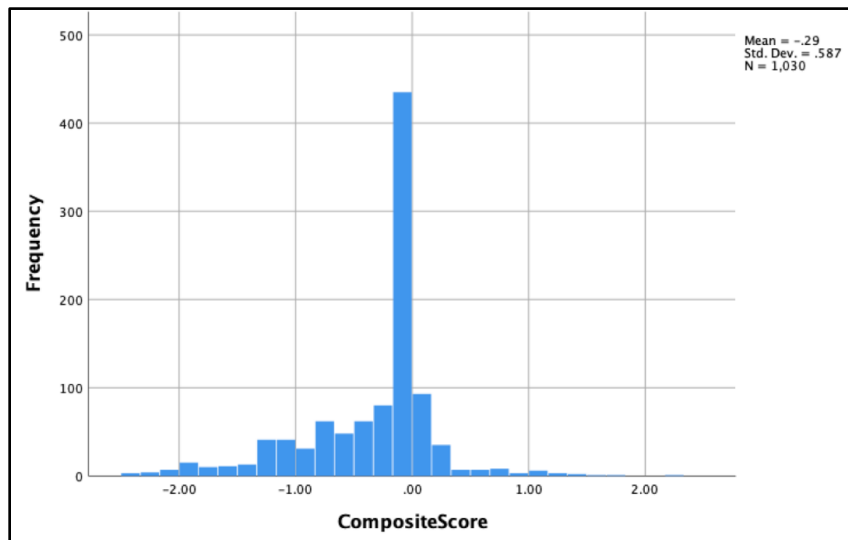
*Test of Normality of Language Mindsets*

Language mindset	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Language mindset	.210	1030	.000	.864	1030	< .001

Note. (n = 1,030).

**Figure 9**

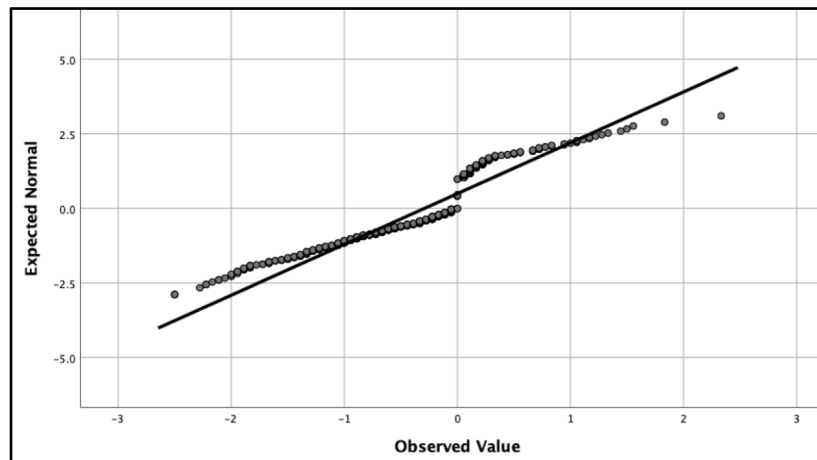
*Histogram of Composite Language Mindset Scores*





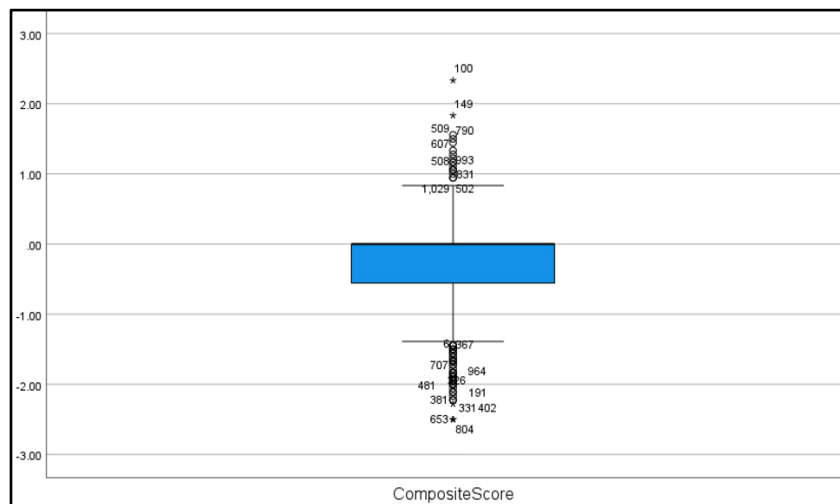
**Figure 10**

*Q-Q Plot of Composite Language Mindset Scores*



**Figure 11**

*Boxplot of Composite Language Mindset Scores*



### **Homoscedasticity and Linearity**

Besides the normality test, tests for linearity and homoscedasticity were also required, using scatterplots to check for suitability (Pallant, 2016). Consequently, scatterplots were

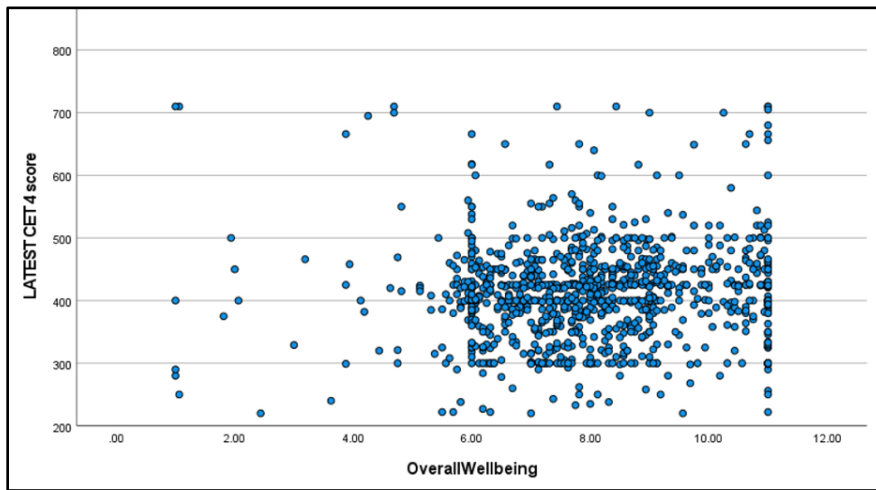
generated between the dependent variables (e.g., well-being, language mindset) and the independent variable (i.e., CET 4 score) to check the linearity and homoscedasticity before performing correlation analyses. Figure 12 indicated the CET 4 was positively related with overall well-being in a vague cigar shape, and so was the relationship with the GLM scores. In contrast, CET 4 scores were negatively related to the composite language mindset score in a linear fashion (see Figure 14), as was the relationship with the fixed growth mindset (see Figure 15).

### **Outliers**

Next, the outliers of all the continuous variables were checked and cleaned (Pallant, 2016). This study included the continuous variables of CET 4 scores, well-being level, and language mindset score (i.e., GLM and FLM). The students' CET 4 scores less than 220 were regarded as outliers in this study because the National College English Testing Committee of China only reported participants' CET 4 scores above 220 with a certificate (H. Wang et al., 2023; Z. Yao et al., 2023). Regarding other dependent variables (e.g., well-being level, composite language mindset score), all the values were distributed in the proper score range, with the well-being score situating in the range of 1–11 (see Figure 12) and the composite language mindset score situating in the range of -3 to 3 (see Figure 13). Moreover, no outliers of well-being scores were found in boxplots (see Figure 8), yet Figure 8 presented some high leverage values with asterisks (i.e., ID 100, ID 149, ID 804, and ID 653); then, the scale scores corresponding to each variable were checked in the database and the validation revealed the scores for each item corresponding to these retrieved numbers were in the normal scale range and none of them were extreme values; in view of which, these high leverage values were considered to be retained.

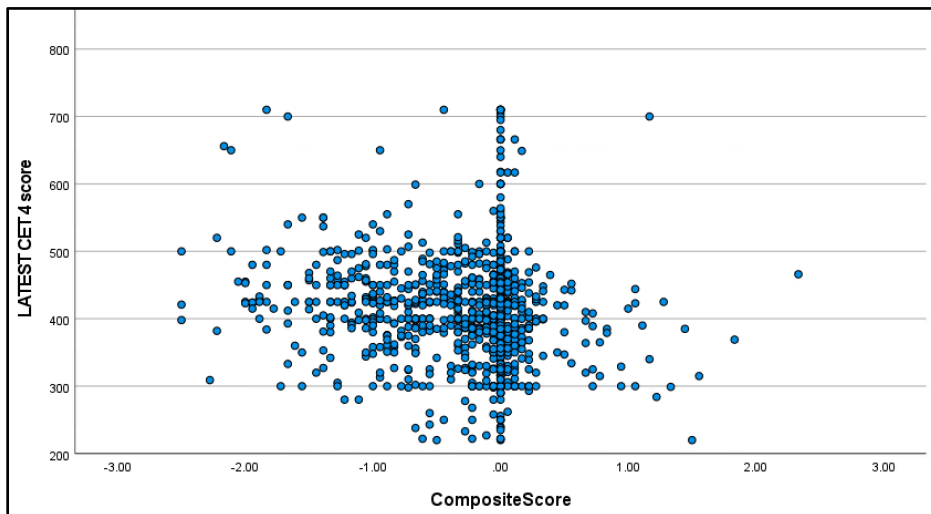
**Figure 12**

*Scatterplot of Well-Being and CET 4 Scores*



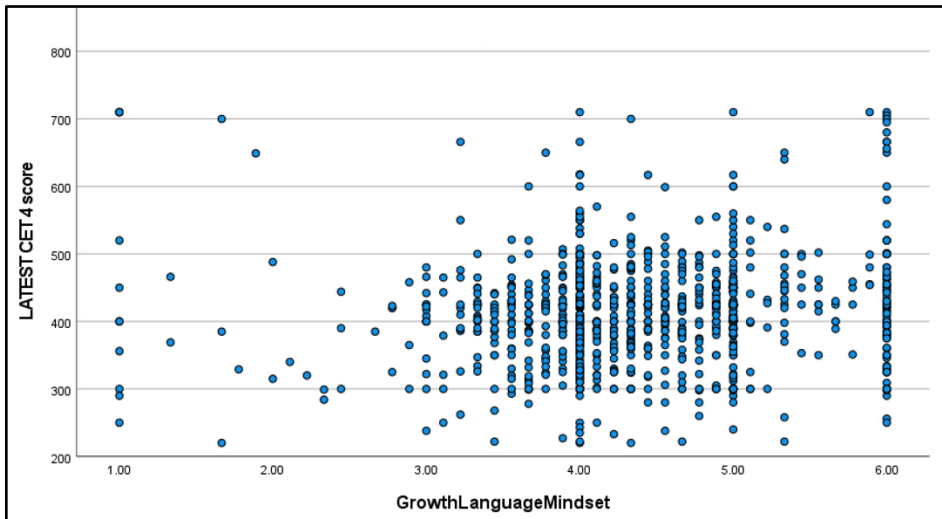
**Figure 13**

*Scatterplot of Composite Language Mindset and CET 4 Scores*



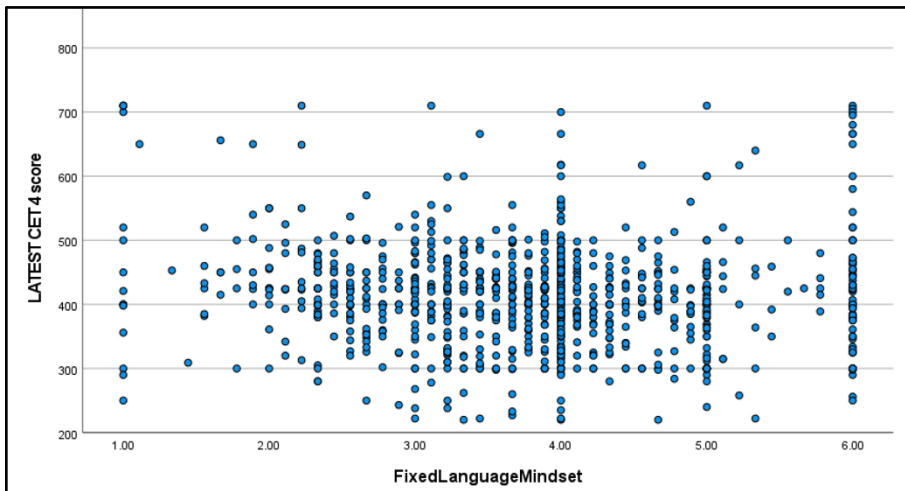
**Figure 14**

*Scatterplot of Growth Language Mindset and CET 4 Scores*



**Figure 15**

*Scatterplot of Fixed Language Mindset and CET 4 Scores*



## Results

Based on the aforementioned research design, four research questions were addressed in this study. The first three questions (i.e., RQ1, RQ2, and RQ3) considered the correlations among variables. Hence, a correlation method was applied to answer the first three questions. The last question (i.e., RQ4) was on the demographic differences among different variable groups (i.e., well-being, language mindset, and CET 4 scores). Considering the data were skewed from being normally distributed, nonparametric alternatives, such as Spearman's rho, Mann-Whitney U test, and Kruskal-Wallis, were performed (Pallant, 2016). Therefore, due to the skewness and kurtosis (see Table 13; see Figure 9), the nonparametric methods (i.e., Spearman correlations, Mann-Whitney U test, and Kruskal-Wallis test; see Table 14) were applied in this study, among which the Mann-Whitney U test was used for two-group comparison, and the Kruskal-Wallis test was used for the comparison of more than three groups (Pallant, 2016).

### Research Question 1

RQ1: What, if any, is the relationship between EFL students' well-being level, language mindsets, and CET 4 scores?

Because a Pearson correlation analysis, using a Pearson product-moment correlation coefficient, could not be applied to this study, a Spearman rho was alternatively chosen because the data could not fit the requirement of Pearson correlation (Pallant, 2016). Therefore, to determine the correlations among participants' well-being levels, language mindsets, and CET 4 scores, the Spearman correlations were applied to RQ1, RQ2, and RQ3.

**Table 14***Spearman Correlations of CET 4, Well-Being, and LM*

Variables	1	2	3	4	5
1. CET 4	---				
2. Well-Being	.110**	---			
3. Fixed language mindset	-.080**	.182**	---		
4. Growth language mindset	.127**	.589**	.244**	---	
5. Composite language mindset	-.136**	-.181**	.709**	-.388**	---

*Note.* \*\*Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

Following the correlation results (see Table 10), a strong and positive relationship was found between the composite language mindset and the FLM scores with an  $r$  value of .709 (J. Cohen, 2013), so the  $r$ -squared value was approximately .503, indicating approximately 50.3% of the variance in the composite language mindset could be explained by FLM, with a 95% confidence interval of .678 to .738 (Lowry, n.d.). Therefore, a higher FLM led to a higher composite language mindset score, which was computed by deducting the GLM score from the FLM score (Lou & Noels, 2017).

Hypothetically speaking, with a higher level of GLM, participants should enjoy a higher level of well-being. The second most robust and favorable correlation was accurately demonstrated, as indicated in Table 10, where a strong association emerged between growth-oriented language mindset and the comprehensive well-being score, with a correlation coefficient of .589. Then, the  $r$ -squared value, approximately .346, signified that approximately 34.6% of the variance in the overall well-being score could be explained by the GLM. Thus, a substantial portion of the variability in well-being scores was attributable to the language mindset focused on growth-oriented perspectives. Similarly, with a higher level of GLM scores, participants

would have lower composite language mindset scores, which was proved by the medium and negative relationship between the composite language mindset and GLM ( $r = -.388$ ; J. Cohen, 2013), indicating approximately 15% of the variance in the composite language mindset group was illustrated by the growth mindset holders.

Furthermore, in hypothetical terms, with a higher level of well-being and GLM, there should be a better English performance for participants with higher CET 4 scores. In comparison, a higher composite language mindset should result in a lower CET 4 score. It turned out the aforementioned tendency was observed (see Table 10). However, a modest positive association existed between CET 4 scores and both well-being ( $r = .110$ ) and growth-oriented language mindset ( $r = .127$ ). Conversely, a slight negative correlation was noted between CET 4 scores and composite language mindset ( $r = .136$ ). These findings suggested a nuanced but discernible connection between English proficiency, language mindsets, and overall psychological well-being (PWB).

## **Research Question 2**

RQ2: What, if any, is the relationship between EFL students' well-being profiles (i.e., positive emotions, engagement, relationship, meaning, accomplishment, negative emotion, and physical health), language mindsets (i.e., growth or fixed) in terms of their beliefs (i.e., general language intelligence beliefs, second language aptitude beliefs, and age sensitivity beliefs about language learning), and CET 4 scores?

To check the influence of detailed well-being and language mindset elements on participants' English performance (i.e., CET 4 scores), Spearman correlations were conducted. According to Table 11, the analyses revealed the relationships between CET 4 scores and students' engagement ( $r = .129$ ), meaning ( $r = .115$ ), and achievement ( $r = .125$ ) were

characterized by relatively small strengths. This finding suggested that although there was some degree of association between CET 4 performance and aspects such as engagement, perceived meaning, and academic achievement, the correlations were not particularly strong.

However, a noteworthy finding emerged regarding the relationship between CET 4 scores and fixed L2B. The correlation coefficient ( $r = -.112$ ) indicated a weak negative association, implying that as fixed L2B tendencies increased among students, their CET 4 scores tended to decrease. This finding suggested students who held more rigid beliefs about language learning and proficiency exhibited lower performance on the CET 4 exam. Such insights shed light on the complex interplay between language attitudes and actual language proficiency among students.

Positive emotions demonstrated a considerable association with various dimensions: engagement ( $r = .831$ ), relationship ( $r = .830$ ), meaning ( $r = .837$ ), achievement ( $r = .818$ ), and health ( $r = .807$ ). Additionally, positive emotions played a pivotal role in fostering a growth-oriented language mindset, exhibiting significant correlations with growth GLB ( $r = .531$ ) and growth L2B ( $r = .510$ ). These correlations implied a noteworthy proportion of participants shared variance with these dimensions, with approximately 26%–28% of students sharing variance with growth GLB and growth L2B, respectively. Furthermore, positive emotions showed a moderate correlation with growth ASB ( $r = .454$ ), indicating 20% of students shared variance with growth ASB. This finding suggested positive emotions contributed significantly to the development of a growth-oriented language mindset among students, highlighting their importance in fostering language learning attitudes and beliefs.

Meaning exhibited the strongest correlation with achievement ( $r = .906$ ), indicating approximately 82.08% of the variance in the meaning could be explained by the achievement; thus, individuals with a heightened sense of purpose in life tended to attain greater levels of



academic success (see Table 11). Moreover, its association with GLM emerged notably robust, as evidenced by the highest correlation coefficient of .583, suggesting individuals who perceived their language learning journey as meaningful were more inclined to embrace a positive and proactive attitude toward language acquisition and improvement. Moreover, the relationship between GLM and various dimensions of well-being further highlighted the interconnectedness of meaning and holistic flourishing. The strong correlations between GLM and achievement ( $r = .568$ ), positive emotion ( $r = .540$ ), engagement ( $r = .525$ ), and relationship ( $r = .583$ ) underscored the pivotal role of meaning in fostering a sense of fulfillment, motivation, and connectedness in various domains of life. Additionally, the moderate correlation with health ( $r = .482$ ) suggested a meaningful outlook on language learning may have also contributed to overall well-being and physical health. Overall, these findings emphasized the profound influence of meaning on academic achievement and holistic well-being, highlighting the importance of cultivating a sense of purpose and significance in educational and personal endeavors.

Negative emotions exhibited a positive relationship with FLM and its individual dimensions, as depicted in Tables 11 and 13. Specifically, negative emotions displayed a moderate correlation with FLM ( $r = .408$ ) and its components: fixed general language belief (GLB;  $r = .380$ ), fixed second language belief (L2B;  $r = .397$ ), and fixed age sensitivity belief (ASB;  $r = .370$ ), respectively. Notably, negative emotions also demonstrated positive correlations with GLM ( $r = .248$ ) and its detailed dimensions, including growth GLB ( $r = .222$ ), growth L2B ( $r = .249$ ), and growth ASB ( $r = .243$ ; see Tables 11 and 12). These findings suggested a nuanced interplay between negative emotions and language mindset among Chinese individuals, reflecting underlying cultural influences and Chinese thinking patterns.

Regarding its association with well-being profiles, negative emotions exhibited positive correlations with various dimensions of well-being. Specifically, there was a moderate correlation with engagement ( $r = .353$ ), achievement ( $r = .353$ ), and meaning ( $r = .303$ ), followed by a small correlation with relationship ( $r = .269$ ), health ( $r = .201$ ), and positive emotions ( $r = .194$ ). However, despite these observed correlations, there was no discernible relationship between negative emotions and CET 4 scores (see Tables 15–18).

**Table 15***Spearman Correlations of Measures in Language Mindset, Well-Being, and CET 4*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. CET 4	---													
2. Positive emotions	.094**	---												
3. Engagement	.129**	.831**	---											
4. Relationship	.063**	.830**	.780**	---										
5. Meaning	.115**	.837**	.815**	.775**	---									
6. Achievement	.125**	.818**	.834**	.773**	.906**	---								
7. Health	.049	.807**	.698**	.735**	.755**	.749**	---							
8. Negative emotions	.019	.194**	.353**	.269**	.303**	.352**	.201**	---						
9. Fixed GLB	-.048	.157**	.182**	.162**	.174**	.187**	.160**	.380**	---					
10. Growth GLB	.091**	.531**	.531**	.502**	.572**	.580**	.503**	.222**	.299**	---				
11. Fixed L2B	-.112**	.196**	.245**	.217**	.198**	.217**	.193**	.397**	.713**	.271**	---			
12. Growth L2B	.166**	.510**	.532**	.493**	.563**	.542**	.463**	.249**	.246**	.725**	.234**	---		
13. Fixed ASB	-.049	.163**	.212**	.154**	.187**	.204**	.168**	.370**	.688**	.290**	.739**	.248**	---	
14. Growth ASB	.082**	.454**	.443**	.448**	.469**	.442**	.374**	.243**	.211**	.603**	.232**	.727**	.180**	---

*Note.* \*\*Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 16***Spearman Correlations of Growth Language Mindset and Well-Being Profile*

Growth language mindset	PE	Engagement	Relationship	Meaning	Achievement	Health	NE
	.540**	.542**	.525**	.583**	.568**	.482**	.248**

*Note.* \*\*Correlation is significant at the 0.01 level (2-tailed).

**Table 17***Spearman Correlations of Fixed Language Mindset and Well-Being Profile*

Fixed language mindset	PE	Engagement	Relationship	Meaning	Achievement	Health	NE
	.157**	.203**	.165**	.173**	.191**	.158**	.408**

*Note.* \*\*Correlation is significant at the 0.01 level (2-tailed).

**Table 18***Spearman Correlations of Well-Being and Language Mindset Measures*

Well-Being	Fixed GLB	Growth GLB	Fixed L2B	Growth L2B	Fixed ASB	Growth ASB
	.177**	.580**	.220**	.561**	.189**	.479**

*Note.* \*\*Correlation is significant at the 0.01 level (2-tailed).

Concerning the associations between overall well-being and specific mindset perspectives, notable correlations were observed. There was a robust correlation between well-being and all growth-oriented language mindsets, particularly with growth GLB ( $r = .580$ ) and growth L2B ( $r = .561$ ), and a moderate correlation was noted with growth ASB ( $r = .479$ ), suggesting individuals who embraced a positive outlook on language learning and communication tended to experience higher levels of well-being. This finding implies that

cultivating beliefs centered around growth and improvement in language proficiency can contribute to overall psychological health and satisfaction. In contrast, a small correlation was identified between well-being and FLM profiles ( $r = .220$ ; see Table 18), indicating individuals who adhered to rigid beliefs about language learning and communication may have experienced comparatively lower levels of well-being. This finding highlighted the potential detrimental effects of fixed mindsets on psychological health and underscored the importance of cultivating adaptive and growth-oriented attitudes toward language.

### **Research Question 3**

RQ3: What, if any, is the relationship between well-being level and CET 4 scores among three different composite language mindset groups?

To answer RQ3, a series of nonparametric correlations were conducted. Prior to that, the development of the composite score in language mindset scale is mentioned. According to Lou and Noels (2017), considering there was a strong negative correlation between the incremental mindset score and entity mindset score, researchers were given the initiatives to combine two scores into one by adding entity score with the reversed incremental score, and the higher composite score meant participants had higher fixed mindset and lower growth mindset. Plus, by the aforementioned descriptives analysis in SPSS Version 29 (see Table 2), the composite language mindset scores, ranging from -2.5 to 2.33, were categorized into three groups: (a) Group 0 with a score of 0; (b) Group 1, ranging from -2.5 to 0; and (c) Group 2, ranging from 0 to 2.33. Per Table 15, there was a weak and significant relationship ( $r = .183, p < .001$ ) between CET 4 and well-being in Group 1, whose scores ranged from -2.5 to 0. Considering the composite score was computed by deducting the growth mindset score from the fixed mindset score, a negative composite score meant the GLM score was bigger than the fixed one, and the

group enjoyed a higher growth mindset, indicating participants in this group tended to exhibit growth mindsets. With the statistically significant relationship ( $r = .183$ ), a weak positive correlation between CET 4 scores and well-being was found in Group 1 with the growth mindsets. However, these correlative results signified a relatively small effect size of 3.35% ( $r^2 = .0335$ ; see Table 19). Further, a scatterplot of CET 4 and well-being in the composite growth mindset group proved a weak positive correlation in a vague cigar-shaped fashion (see Figure 16).

**Table 19**

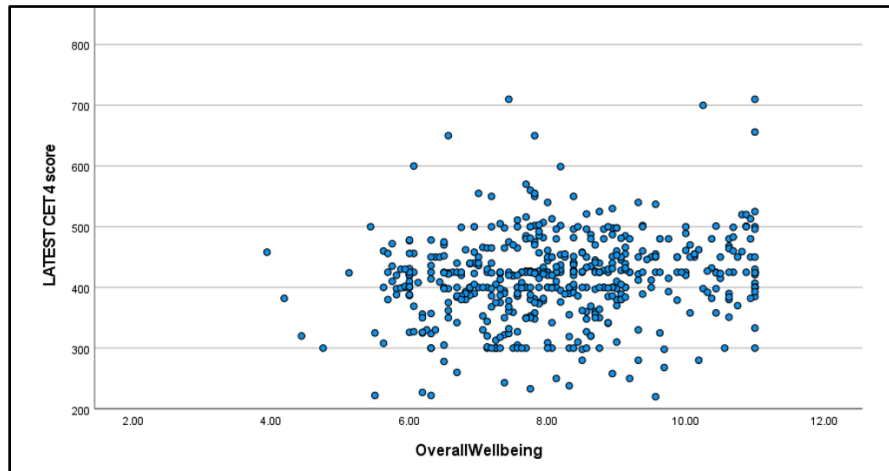
*Correlations of CET 4 and Well-Being Among Language Mindset Groups*

Language mindset groups	Variable		CET 4 scores	Well-Being
Group 0 ( $n = 353$ )	CET 4 scores	Correlation coefficient	1.00	.012
		Sig. (2-tailed)	.	.822
	Well-Being	Correlation coefficient	.012	1.00
		Sig. (2-tailed)	.822	.
Group 1 ( $n = 511$ )	CET 4 scores	Correlation coefficient	1.00	.183**
		Sig. (2-tailed)	.	< .001
	Well-Being	Correlation coefficient	.183**	1.00
		Sig. (2-tailed)	< .001	.
Group 2 ( $n = 166$ )	CET 4 scores	Correlation coefficient	1.00	.001
		Sig. (2-tailed)	.	.891
	Well-Being	Correlation coefficient	.011	1.00
		Sig. (2-tailed)	.891	.

*Note.* \*\*Correlation is significant at the 0.01 level (2-tailed).

**Figure 16**

*Correlations of CET 4 and Overall Well-Being for Growth Mindset Group*



#### **Research Question 4**

RQ4: What, if any, is there any demographic difference (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times) in terms of CET 4 scores, well-being scores, and language mindset scores?

As a substitution for the  $t$  test in parametric analyses, the Mann-Whitney U test—a nonparametric alternative aimed at examining the medians between two groups—was employed to determine whether two independent groups differed on a continuous measure by transforming the continuous scores into rank and assessing the significant difference between these two groups (Pallant, 2016). Because the data did not meet the normality assumption, RQ4 was analyzed with the Mann-Whitney U test. As a supplement to the Mann-Whitney U test, the Kruskal-Wallis test, known as the Kruskal-Wallis H test, is often used as a substitute for a one-way between-groups analysis for parametric studies, and enables researchers to compare three or more groups' scores on a continuous variable (Pallant, 2016). Thus, the two-group comparison (i.e., gender, accommodation, and only child) was performed via the Mann-Whitney U test. In comparison,

demographics of more than three groups (i.e., year of study, hometown locales, future degree, and CET 4 times) were conducted via the Kruskal-Wallis H test.

Before any test was performed, the normality tests based on two-group demographic of genders and only children were conducted (see Table 20), and the nonnormality distributions were concluded in terms of CET 4 scores, well-being, GLM, FLM, and composite language mindset scores. Because a significance value of 0 signified the violation of the normality assumption among the gender groups, Mann-Whitney U tests were conducted.

**Table 20**

*Tests of Normality of CET 4, Well-Being, and Language Mindset Across Genders*

Variable	Gender	Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	<i>df</i>	Sig.	Statistic	<i>df</i>	Sig.
CET 4 score	Female	.072	683	0	.956	683	0
	Male	.111	347	0	.920	347	0
Overall well-being	Female	.055	683	0	.962	683	0
	Male	.080	347	0	.946	347	0
Growth language mindset	Female	.089	683	0	.948	683	0
	Male	.107	347	0	.923	347	0
Fixed language mindset	Female	.087	683	0	.982	683	0
	Male	.133	347	0	.954	347	0
Composite language mindset	Female	.188	683	0	.891	683	0
	Male	.253	347	0	.798	347	0

*Note.* a Lilliefors significance correction.

As observed, the distribution of CET 4 score was the same across categories of gender. However, when the Mann-Whitney U test (see Tables 21 and 22; see Figure 17) was performed to evaluate whether women and men differed by CET 4 scores, the result showed women ( $Mdn =$



424,  $n = 683$ ) had significantly higher CET 4 scores than men ( $Mdn = 400, n = 347, U = 97576.5, p < .001, r = .14$ ). Additionally, in accordance with J. Cohen (2013), the effect size of .1 meant a small effect size, .3 meant a medium effect size, and .5 represented a large effect size. Therefore, there was a small effect size of 1.96% (J. Cohen, 2013), suggesting that although there was a statistically significant difference in CET 4 scores between genders, the effect size of this difference was relatively small.

**Table 21**

*Tests of Normality of CET 4 Scores Across Genders*

	Null hypothesis	Test	Sig.	Decision
1	The distribution of latest CET 4 score is the same across categories of gender.	Independent-samples Mann-Whitney U test	< .001	Reject the null.

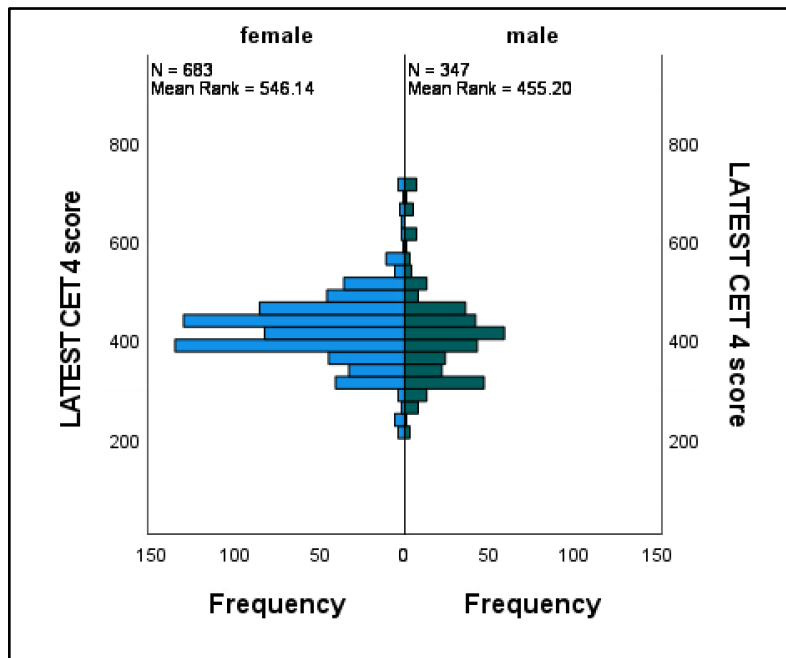
**Table 22**

*Mann-Whitney U Test of CET 4 Scores Across Genders*

Independent-samples Mann-Whitney U test summary	
Total $N$	1,030
Mann-Whitney $U$	97576.5
Wilcoxon $W$	157954.5
Test Statistic	97576.5
$SE$	4510.26
Standardized Test Statistic	-4.639
Asymptotic Sig.(2-sided test)	< .001

**Figure 17**

*Mann-Whitney U Test of CET 4 Scores by Gender*



Likewise, the FLM median was found to be different between women and men. The male students ( $Mdn = 4$ ,  $n = 347$ ) had significantly higher FLM scores than female students ( $Mdn = 3.89$ ,  $n = 683$ ,  $U = 113626.5$ ,  $p < .001$ ,  $r = .11$ ), indicating a small effect size (J. Cohen, 2013; see Tables 23 and 24; see Figure 18).

**Table 23**

*Hypothesis Test Summary of Fixed Language Mindset Across Genders*

	Null hypothesis	Test	Sig.	Decision
2	The distribution of fixed language mindset is the same across categories of gender.	Independent-samples Mann-Whitney U Test	0	Reject the null.

*Note.* Asymptotic significances are displayed. The significance level is .050.

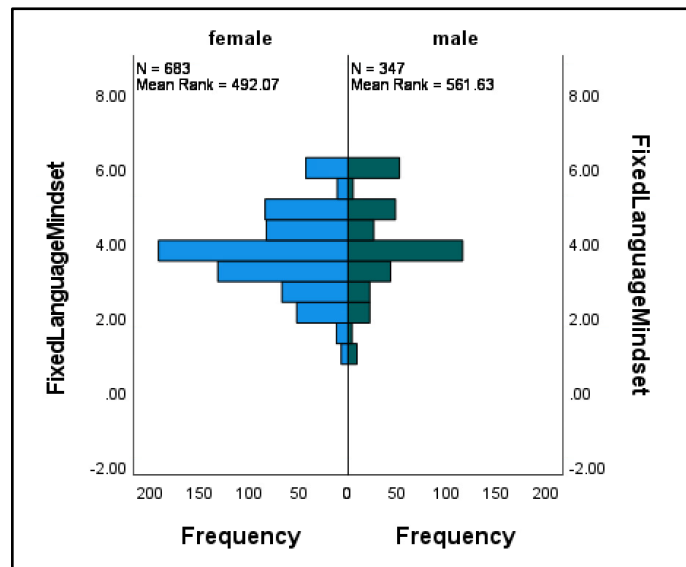
**Table 24**

*Mann-Whitney U Test of Fixed Language Mindset Across Genders*

Independent-samples Mann-Whitney U test summary	
Total <i>N</i>	1,030
Mann-Whitney <i>U</i>	134506.5
Wilcoxon <i>W</i>	194884.5
Test Statistic	134506.5
<i>SE</i>	4500.146
Standardized test statistic	3.557
Asymptotic Sig. (2-sided test)	0

**Figure 18**

*Mann-Whitney U Test of Fixed Language Mindset by Gender*



The composite language mindset score (see Tables 25 and 26; see Figure 19) was different between women and men. Additionally, male students ( $Mdn = 0$ ,  $n = 347$ ) had significantly higher composite language mindset scores than female students ( $Mdn = -.055$ ,  $n = 683$ ,  $U = 137532.5$ ,  $p < .001$ ,  $r = .13$ ), suggesting a small effect size (J. Cohen, 2013).

**Table 25**

*Hypothesis Test Summary of Composite Language Mindset Scores Across Genders*

	Null hypothesis	Test	Sig.	Decision
3	The distribution of composite score is the same across categories of gender.	Independent-samples Mann-Whitney U test	< .001	Reject the null.

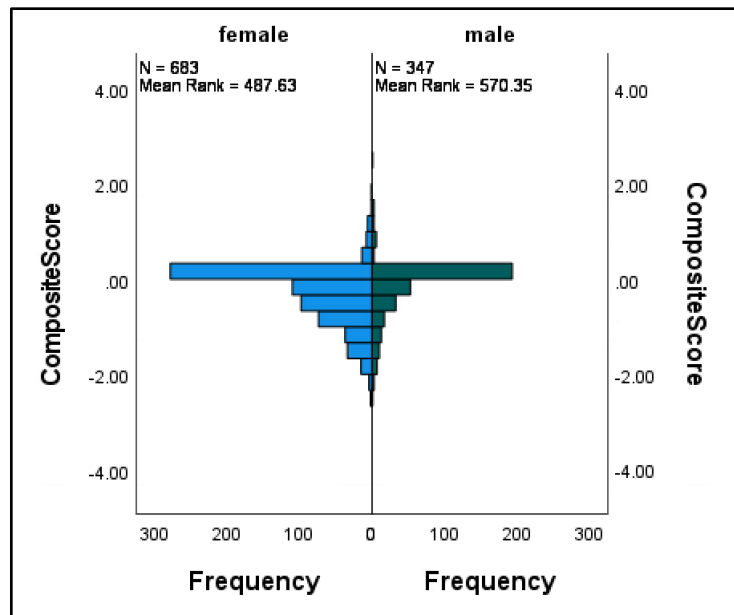
**Table 26**

*Mann-Whitney U Test of Composite Language Mindset Scores Across Genders*

Independent-samples Mann-Whitney U test summary	
Total N	1,030
Mann-Whitney U	137532.5
Wilcoxon W	197910.5
Test Statistic	137532.5
SE	4420.525
Standardized test statistic	4.305
Asymptotic Sig. (2-sided test)	< .001

**Figure 19**

*Mann-Whitney U Test of Composite Language Mindset by Gender*



Although no differences were found in well-being levels, the physical health differences between women and men were supported (see Tables 27 and 28; see Figure 20). The male participants ( $Mdn = 8.33$ ,  $n = 347$ ) had significantly higher physical health scores than female students ( $Mdn = 8$ ,  $n = 683$ ,  $U = 128235$ ,  $p = .03$ ,  $r = .06$ ), suggesting a very small effect size (J. Cohen, 2013).

**Table 27**

*Hypothesis Test Summary of Health Across Genders*

	Null hypothesis	Test	Sig.	Decision
4	The distribution of average health is the same across categories of gender.	Independent-samples Mann-Whitney U test	.03	Reject the null.

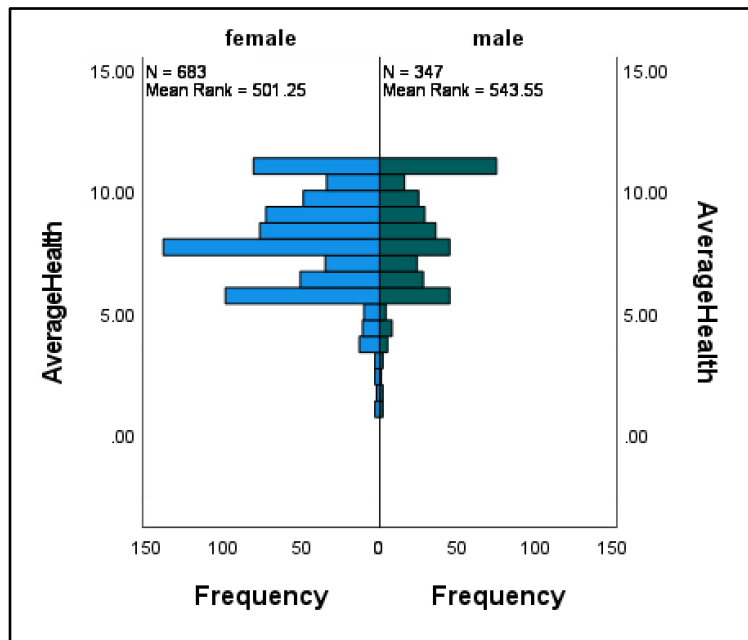
**Table 28**

*Mann-Whitney U Test of Health Across Genders*

Independent-samples Mann-Whitney U test summary	
Total $N$	1,030
Mann-Whitney $U$	128235
Wilcoxon $W$	188613
Test Statistic	128235
$SE$	4497.707
Standardized test statistic	2.164
Asymptotic Sig. (2-sided test)	.03

**Figure 20**

*Mann-Whitney U Test of Average Health by Gender*



The Mann-Whitney U test was conducted to investigate whether accommodation and family planning differed by CET 4 scores. There was no difference in accommodations, and the family planning differed in CET 4 scores (see Tables 29 and 30; see Figure 21). The only child group ( $Mdn = 424, n = 558$ ) had significantly higher CET 4 scores than the non-only-child group ( $Mdn = 400, n = 472, U = 113626.5, p < .001, r = .12$ ), indicating a small effect size (J. Cohen, 2013). These results highlighted the potential impact of China's one-child policy on academic outcomes, particularly in relation to English proficiency as measured by the CET 4 exam. The higher CET 4 scores observed among only children suggested growing up without siblings conferred certain advantages in language learning and academic achievement.

**Table 29***Hypothesis Test Summary of CET 4 Across Child Planning*

	Null hypothesis	Test	Sig.	Decision
5	The distribution of latest CET 4 score is the same across categories of only child or not.	Independent-samples Mann-Whitney U test	< .001	Reject the null.

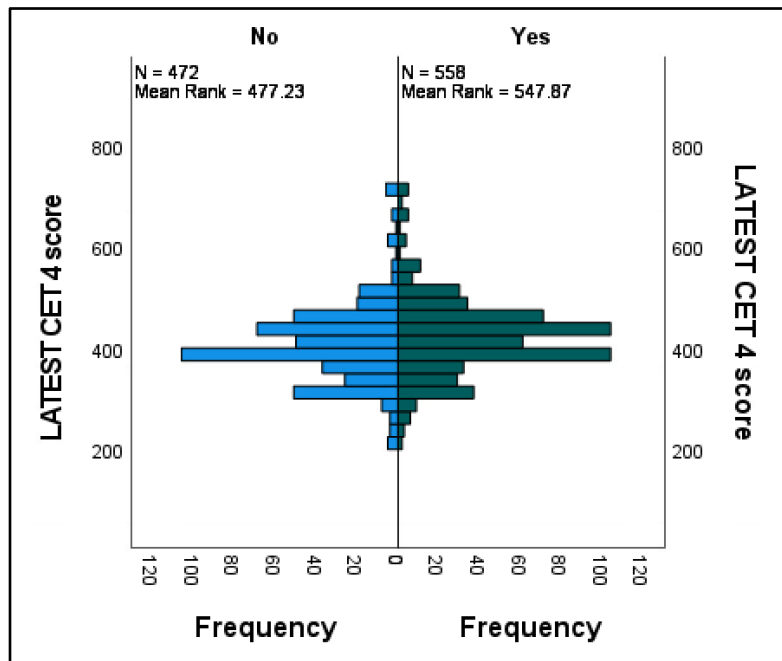
*Note.* Asymptotic significances are displayed. The significance level is .050.

**Table 30***Mann-Whitney U Test of CET 4 Across Family Planning*

Independent-samples Mann-Whitney U test summary	
Total <i>N</i>	1,030
Mann-Whitney U	113626.5
Wilcoxon W	225254.5
Test Statistic	113626.5
<i>SE</i>	4754.606
Standardized test statistic	-3.799
Asymptotic Sig. (2-sided test)	< .001

**Figure 21**

*Mann-Whitney U Test of CET 4 Scores by Family Planning*



To check the differences among three or more groups (i.e., year of study, hometown locales, future degree, and CET 4 times), a series of Kruskal-Wallis H tests were employed. The Kruskal-Wallis test revealed a statistically significant difference in CET 4 levels across hometown locales,  $\chi^2(2, 1030) = 11.729, p = .003$ . The CET 4 urban group recorded a higher median score ( $Mdn = 424$ ) than the other two groups, with the CET 4 suburban group median score of 410 and rural group of 400, respectively (see Tables 31–33; see Figures 22 and 23).

Furthermore, to figure out which groups were statistically different from the others, post hoc tests and effect size calculations were needed (Pallant, 2016). According to Table 30, there was a statistically significant difference between the rural and urban group after adjusting for multiplicity with the revised alpha level of .002 and the effect size of .0047, indicating a small effect (J. Cohen, 2013). The blue line in Figure 20 showed the significance between the rural and



urban group. These results highlighted the pervasive nature of rural–urban inequalities in China, particularly in relation to the variables under investigation. The small effect size suggested that although the differences between rural and urban areas were statistically significant, they were not necessarily substantial in magnitude. However, the significance of these differences underscored the need for targeted interventions and policies aimed at addressing disparities and promoting equitable development across rural and urban regions in China.

**Table 31**

*Hypothesis Test Summary of CET 4 Across Hometown Locales*

	Null hypothesis	Test	Sig.	Decision
6	The distribution of latest CET 4 score is the same across categories of hometown locales.	Independent-samples Kruskal-Wallis test	.003	Reject the null.

*Note.* Asymptotic significances are displayed. The significance level is .050.

**Table 32**

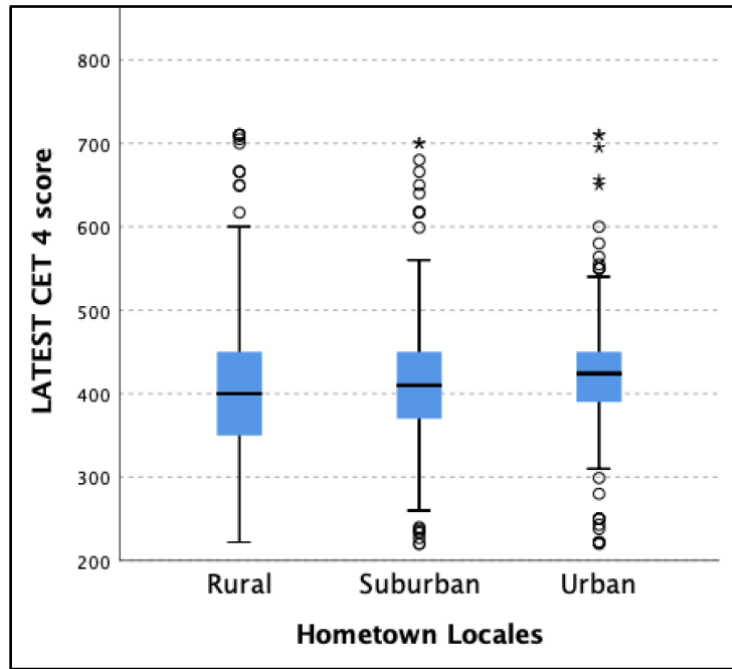
*Kruskal-Wallis Test of CET 4 Across Hometown Locales*

Independent-samples Kruskal-Wallis test summary	
Total <i>N</i>	1,030
Test Statistic	11.729 <sup>a</sup>
<i>df</i>	2
Asymptotic Sig. (2-sided test)	.003

*Note.* <sup>a</sup> The test statistic is adjusted for ties.

**Figure 22**

*Boxplots of CET 4 Scores by Hometown Locales*



*Note.* Independent-Samples Kruskal-Wallis test.

**Table 33**

*Descriptives of CET 4 Scores by Hometown Locales*

Hometown locales	<i>n</i>	<i>Mdn</i>
Rural	339	400
Suburban	314	410
Urban	377	424
Total	1030	415

**Table 34**

*Pairwise Comparisons of Hometown Locales*

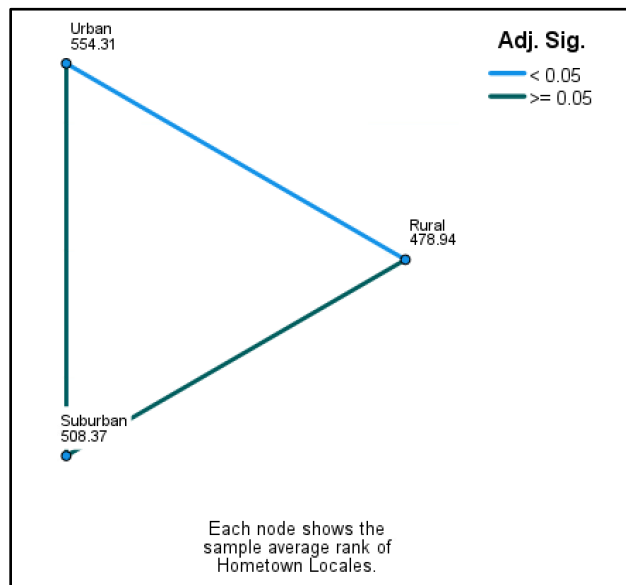
Sample 1–Sample 2	Test statistic	SE	Std. test statistic	Sig.	Adj. Sig. <sup>a</sup>
Rural–Suburban	-29.427	23.288	-1.264	0.206	.619
Rural–Urban	-75.369	22.255	-3.387	0.001	.002
Suburban–Urban	-45.942	22.717	-2.022	0.043	.129

*Note.* Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

<sup>a</sup> Significance values have been adjusted by the Bonferroni correction for multiple tests.

**Figure 23**

*Pairwise Comparisons of Hometown Locales*



Based on the different CET 4 times, all the hypotheses of well-being, language mindsets scores, and CET 4 scores were supported. Following this analysis, only the composite language mindset scores and the CET 4 scores showed the differences on CET 4 times (see Table 35). In

detail, the Kruskal-Wallis test revealed a statistically significant difference in composite language mindset levels across three different CET 4 times groups (see Table 37),  $\chi^2(2, 1030) = 18.79, p < .001$  (see Table 36).

To determine the direction of the difference (Pallant, 2016), or which group had higher median values, descriptive statistical tests were conducted (see Table 37). The results showed the CET 4 one-time group had the lowest median value of  $-.06$ , less than other groups of  $0$ , representing the CET 4 one-time group members tended to have GLM.

Following the descriptive tests, the post hoc test results (see Tables 37 and 38; see Figures 24–26) revealed the composite language mindset score of CET 4 one-time group statistically differed from the three-time ( $p = .027, \eta^2 = .089$ ) and four-and-more-time group ( $p = .005, \eta^2 = .104$ ). The composite language mindset score of CET 4 two-time group significantly differed from the four-and-more-time group ( $p = .008, \eta^2 = .10$ ), indicating a small effect (see Table 38), among which the eta-squared symbol is used to indicate the effect size associated with the statistical differences observed in the composite language mindset scores between different groups of participants based on the number of times they took the CET 4 exam. A larger eta-squared value suggested a greater proportion of the variance in composite language mindset scores was explained by the differences between the groups, indicating a stronger effect. An eta-squared value of  $.089$  suggested 8.9% of the variance in composite language mindset scores was attributed to the differences between the one-time and three-time CET 4 exam groups. Similarly, eta-squared values of  $.104$  and  $.100$  suggested 10.4% and 10% of the variance in composite language mindset scores was attributed to the differences between the one-time and four-and-more-time groups, and the two-time and four-and-more-time groups, respectively.

**Table 35***Hypothesis Test of Well-Being, Language Mindset, and CET 4 Across CET 4 Times*

	Null hypothesis	Test	Sig.	Decision
1	The distribution of overall well-being is the same across categories of how many times have you taken the CET Band 4.	Independent-samples Kruskal-Wallis test	.44	Retain the null.
2	The distribution of growth language mindset is the same across categories of how many times have you taken the CET Band 4.	Independent-samples Kruskal-Wallis test	.061	Retain the null.
3	The distribution of fixed language mindset is the same across categories of how many times have you taken the CET Band 4.	Independent-samples Kruskal-Wallis test	.123	Retain the null.
4	The distribution of composite score is the same across categories of how many times have you taken the CET Band 4.	Independent-samples Kruskal-Wallis test	< .001	Reject the null.
5	The distribution of latest CET 4 score is the same across categories of how many times have you taken the CET Band 4.	Independent-samples Kruskal-Wallis test	.018	Reject the null.

*Note.* Asymptotic significances are displayed. The significance level is .050.

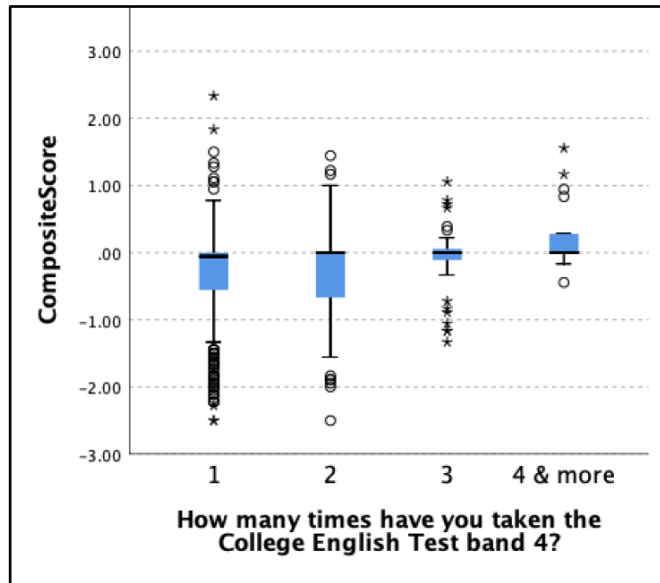
**Table 36***Kruskal-Wallis Test of Composite Language Mindset Across CET 4 Times*

Independent-samples Kruskal-Wallis test summary	
Total <i>N</i>	1,030
Test statistic	18.789 <sup>a</sup>
<i>df</i>	3
Asymptotic Sig. (2-sided test)	< .001

*Note.* <sup>a</sup>. The test statistic is adjusted for ties.

**Figure 24**

*Boxplots of Composite Language Mindset Scores by CET 4 Times*



*Note.* Independent-Samples Kruskal-Wallis test.

**Table 37**

*Descriptives of Composite Language Mindset Across CET 4 Times*

CET 4 times	<i>N</i>	<i>Mdn</i>
1	734	-.06
2	230	.00
3	48	.00
4	18	.00
Total	1,030	.00

**Table 38**

*Pairwise Comparisons of Composite Language Mindset by CET 4 Times*

Sample 1–Sample 2	Test statistic	SE	Std. test statistic	Sig.	Adj. Sig. <sup>a</sup>
1–2	-4.503	22.021	-.204	.838	1.000
1–3	-123.569	43.416	-2.846	.004	.027
1–4 & more	-233.229	69.525	-3.355	<.001	.005
2–3	-119.066	46.244	-2.575	.010	.060
2–4 & more	-228.726	71.325	-3.207	.001	.008
3–4 & more	-109.66	80.544	-1.361	.173	1.000

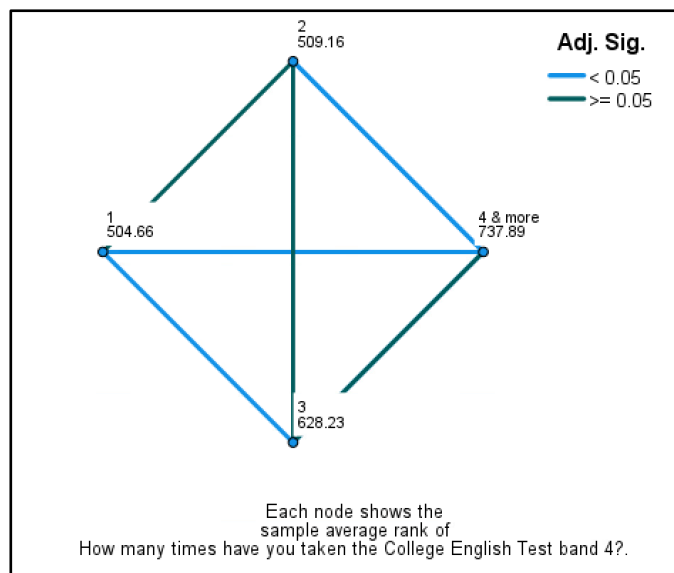
Note. Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

<sup>a</sup> Significance values have been adjusted by the Bonferroni correction for multiple tests.

**Figure 25**

*Pairwise Comparisons of Composite Language Mindset by CET 4 Times*



Overall, the eta-squared values provided insights into the strength of the relationship between the number of CET 4 exam attempts and composite language mindset scores, with larger values indicating a stronger effect of exam attempts on language mindset scores. Therefore, the statistically significant differences in composite language mindset scores between groups based on the number of CET 4 exam attempts highlighted the influence of repeated exposure to the exam on language mindset development. The observed pattern suggested that as participants took the CET 4 exam more frequently, their composite language mindset scores tended to increase. This trend implied repeated engagement with the exam led to a higher tendency toward adopting FLM, characterized by beliefs in stable language abilities and limited potential for improvement.

Moreover, the effect sizes, based on eta-squared values, associated with these differences provided further insights into the magnitude of this relationship. Although the effect sizes were relatively small, ranging from .089 to .104, they still indicated a noticeable impact of CET 4 exam frequency on composite language mindset scores, suggesting that although the effect was not substantial, it was statistically significant and merited attention in language learning and assessment contexts.

However, the null hypothesis of the CET 4 scores on varying CET 4 times was rejected ( $p = .018$ ; see Table 39). Although there was a possibility the CET 4 scores differed among CET 4 times, the significance of pairwise comparisons was not found (see Table 40). Therefore, there was no statistically significant difference among different CET 4 times.



**Table 39**

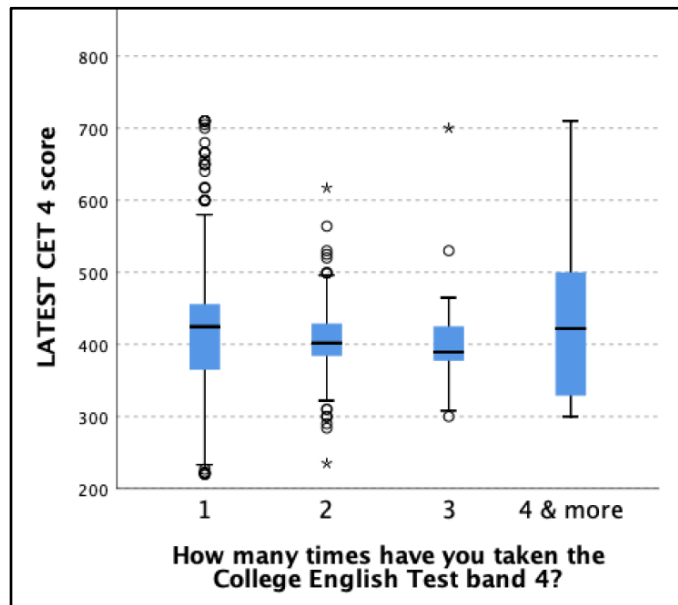
*Kruskal-Wallis Test of CET 4 Scores Across CET 4 Times*

Independent-samples Kruskal-Wallis test summary	
Total <i>N</i>	1,030
Test statistic	10.071 <sup>a</sup>
<i>df</i>	3
Asymptotic Sig. (2-sided test)	.018

*Note.* a The test statistic is adjusted for ties.

**Figure 26**

*Boxplots of CET 4 Scores by CET 4 Times*



*Note.* Independent-Samples Kruskal-Wallis test.

**Table 40***Pairwise Comparisons of CET 4 Scores by CET 4 Times*

Sample 1–Sample 2	Test statistic	<i>SE</i>	Std. test statistic	Sig.	Adj. Sig. <sup>a</sup>
2–3	49.377	47.183	1.047	0.295	1
3–4 & more	-88.385	82.179	-1.076	0.282	1
1–3	103.582	44.298	2.338	0.019	.116
2–4 & more	-39.009	72.773	-0.536	0.592	1
1–2	54.206	22.468	2.413	0.016	.095
4 & more–1	15.197	70.936	0.214	0.83	1

*Note.* Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

<sup>a</sup> Significance values have been adjusted by the Bonferroni correction for multiple tests.

### Chapter Summary

This chapter presented all the analytical results based on the four research questions in this study, among which the Spearman correlation methods were applied for the first three questions to display the correlations among various variables. To gain a further understanding of the participant data, nonparametric analyses (i.e., Mann-Whitney U tests and Kruskal-Wallis H tests) were performed to investigate the differences among various demographic groups further.

The key results (see Table 41) revealed that with a higher level of overall well-being, participants had a higher GLM and vice versa, shedding light on the fact that participants with higher levels of overall well-being tended to have higher GLM scores, including higher GLB, L2B, and ASB, and better English performance with higher CET 4 scores. Specifically, positive emotion stood out with a relatively strong relationship with participants' engagement, relationship, meaning, and achievement, and greatly influenced participants' GLM, ranging from growth GLB, L2B, and ASB. Additionally, participants with higher levels of meaning tended to

achieve the highest and had a higher tendency to have GLM. Among participants whose composite language mindset scores belonged to the growth type, there was a significant but weak correlation between students' CET 4 scores and overall well-being.

As for the comparison of results among different demographical groups, gender differences were found among CET 4 scores, FLM, and composite language mindset scores. Female participants had higher CET 4 scores than males participants. In contrast, male participants had higher levels of FLM and composite language mindset scores than their counterparts. Interestingly, participants from one-child families tended to have higher CET 4 scores than multichild families. Regarding CET 4 score differences among hometown locales, students from urban areas excelled compared to the other two groups of rural and suburban. Significantly speaking, the language mindset and the CET 4 performance were distinct due to gender, hometown locales, and family planning among EFL learners in an HVE university. Consequently, in the following chapter, comprehensive discussions and conclusions of the aforementioned results are presented and discussed; in addition, limitations and recommendations are offered. The implications for corresponding stakeholders are also presented.

**Table 41***Summary of Research Questions, Hypotheses, Methods, and Results*

Research questions	Hypotheses	Methods	Support	Results
Q1: What are the relationships among EFL students' well-being level, language mindsets, and CET 4 scores?	Participants with higher level of well-being would enjoy higher level of growth language mindsets, and vice versa.	Spearman correlations	Supported	There was a significant positive correlation between well-being and growth language mindset, $r(1,028) = .589, p < .001$ .
	Participants with higher level of well-being and growth language mindset would achieve higher CET 4 scores.	Spearman correlations	Supported	There was a weak positive correlation between CET 4 and well-being ( $r[1,028] = .11, p < .001$ ) and growth language mindset, $r(1,028) = .127, p < .001$ .
Q2: What are the relationships among EFL students' well-being profiles (i.e., positive emotions, engagement, relationship, meaning, accomplishment, negative emotion, and physical health), language mindsets (i.e., growth or fixed) in terms of their beliefs (i.e., GLB, L2B, and ASB), and CET 4 scores?	Positive emotions had the vast influence on well-being profiles, and growth language mindset profiles.	Spearman correlations	Supported	Positive emotions had a strong correlation with engagement ( $r = .831$ ), relationship ( $r = .830$ ), meaning ( $r = .837$ ), achievement ( $r = .818$ ), and health ( $r = .807$ ), and greatly correlated with growth GLB ( $r = .531$ ), L2B ( $r = .510$ ), and ASB ( $r = .454$ ).
	Participants with higher level of meaning tend to achieve the highest and have a growth language mindset.	Spearman correlations	Supported	Meaning had the strongest correlation with achievement ( $r = .906$ ), and a strong correlation with growth language mindset ( $r = .583$ ).
	Negative emotions had positive correlations with fixed language mindset profile.	Spearman correlations	Supported	Negative emotions had a medium correlation with fixed language mindset ( $r = .408$ ), and its dimensions of fixed GLB ( $r = .380$ ), fixed L2B ( $r = .397$ ), and fixed ASB ( $r = .370$ ).

Research questions	Hypotheses	Methods	Support	Results
RQ3: What are the relationships between well-being level, and CET 4 scores among three different composite language mindset groups?	In the group with a growth composite language mindset score, there is a positive relationship between well-being and CET 4 scores.	Spearman correlations	Supported	There was a weak positive correlation between CET 4 scores and well-being among participants with growth language mindset ( $r = .183, p < .001$ ).
RQ4: Is there any demographic difference (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times) in terms of CET 4 scores, well-being scores, and language mindset scores?	The distribution of CET 4 scores across genders were different.	Mann-Whitney U test	Supported	Women ( $Md = 424, n = 683$ ) had significantly higher CET 4 scores than men ( $Md = 400, n = 347$ ), $p < .001, r = .14$ .
	The distribution of fixed language mindset scores across genders were different.	Mann-Whitney U test	Supported	Men ( $Md = 4, n = 347$ ) had significantly higher fixed language mindset scores than women ( $Md = 3.89, n = 683$ ), $p < .001, r = .11$ .
	The distribution of composite language mindset scores across genders were different.	Mann-Whitney U test	Supported	Men ( $Md = 0, n = 347$ ) had significantly higher composite language mindset scores than women ( $Md = -.055, n = 683$ ), $p < .001, r = .13$ .
	The distribution of health across genders were different.	Mann-Whitney U test	Supported	Men ( $Md = 8.33, n = 347$ ) had significantly higher physical health scores than women ( $Md = 8, n = 683$ ), $p = .03, r = .06$ .
	The distribution of CET 4 scores across family planning were different.	Mann-Whitney U test	Supported	The only child ( $Md = 424, n = 558$ ) had significantly higher CET 4 scores than non-only-child ( $Md = 400, n = 472$ ), $p < .001, r = .12$ .
	The distribution of CET 4 scores across hometown locales were different.	Kruskal-Wallis H test; post hoc	Supported	There is a statistically significant difference in CET 4 scores between the rural ( $n = 339$ ) and urban group ( $n = 377$ ); $\eta^2 = .36, p = .002$ .
	The distribution of composite language mindset score across CET 4 times were different.	Kruskal-Wallis H test; post hoc	Supported	CET 4 one-time group statistically differed from three-time ( $p = .027, \eta^2 = .09$ ) and four-and-more-time group ( $p = .005, \eta^2 = .104$ ), and the two-time group significantly differed from four-and-more-time group ( $p = .008, \eta^2 = .10$ ).

## **CHAPTER 5. DISCUSSION AND CONCLUSION**

The purpose of this study was to explore whether there was any correlation between the well-being, growth language mindset (GLM), and English achievements (i.e., College English Test [CET] 4 scores) among English as a foreign language (EFL) Chinese higher vocational education (HVE) students in China, and further investigated the differences between participants' well-being levels, language mindsets, and English achievements based on their different demographic characteristics. Using a quantitative approach, research was conducted via nonparametric methods (i.e., Spearman correlations, Mann-Whitney U tests, and Kruskal-Wallis H tests) with students in an HVE university in China.

In this chapter, a brief discussion and results summary are presented. Following that discussion, the reasons for the aforementioned results are inferred, and the future improvement strategies and plans for various stakeholders (e.g., educators, students, policymakers, managers) are discussed. The following sections are also included: a review of the main results of the study from Chapter 4 (see Table 37), discussion of the implications for the stakeholders, strengths and limitations of the study, and an overview of possible future research. First, it is necessary to review the research questions.

### **Research Questions**

RQ1: What, if any, is the relationship between EFL students' well-being level, language mindsets, and CET 4 scores?

RQ2: What, if any, is the relationship between EFL students' well-being profiles (i.e., positive emotions, engagement, relationship, meaning, accomplishment, negative emotion, and physical health), language mindsets (i.e., growth or fixed) in terms of their beliefs (i.e., general

language intelligence beliefs, second language aptitude beliefs, and age sensitivity beliefs about language learning), and CET 4 scores?

RQ3: What, if any, is the relationship between well-being level, and CET 4 scores among three different composite language mindset groups?

RQ4: What are the possible demographic differences (i.e., gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times) in terms of CET 4 scores, well-being scores, and language mindset scores?

### **Discussion of Results**

To find out the correlations among Chinese HVE students' well-being, GLM, and CET 4 scores, nonparametric methods were adopted. Spearman methods were used to study correlation, and Mann-Whitney U tests and Kruskal-Wallis H tests were used for comparison study. Based on the results achieved (see Table 37), the findings are discussed and summarized in a brief manner in this section.

#### **Research Question 1**

Based on positive psychology, Zeng et al. (2016) confirmed the underlying logic of the positive education model in a population of Chinese primary and secondary school students, illustrating the model of the relationship between growth mindset and students' levels of well-being and school engagement holds, and resilience plays a partial role as a mediator throughout the model. Additionally, Zeng et al. also demonstrated students with a growth mindset were significantly better in academic performance than their counterparts. Therefore, the current study hypothesized a positive relationship between GLM, students' well-being, and English achievement in the population of EFL learners in HVE institutions in China.

In the current study, participants with higher levels of well-being enjoyed higher level of GLM, and vice versa, with a strong positive correlation between Chinese HVE students' overall well-being and their GLM ( $r = .589, p < .001$ ). These results corresponded with the research results presented by Kern et al. (2015), via the PERMA-Profilier and Growth Mindset Scale (Dweck, 2007), which indicated growth mindset had a positive relationship with well-being factors including positive emotions ( $r = .29$ ), engagement ( $r = .30$ ), relationship ( $r = .29$ ), and accomplishment ( $r = .37$ ). Similarly, via the same aforementioned instruments, Xiao et al. (2023) also confirmed a positive relationship between well-being and growth mindset in a moderate manner ( $r = .363, p < .01$ ).

In addition to well-being, GLM was included to hypothesize that participants with higher levels of well-being and GLM would achieve higher CET 4, and the study showed a marginal positive correlation between students' CET 4 scores and GLM ( $r = .13$ ) and well-being ( $r = .11$ ), which corresponded with the other findings. As Blackwell et al. (2007) and Zeng et al. (2016) found, students with a growth mindset had more outstanding academic performance than students with a fixed mindset. Similar results were achieved by Ortiz Alvarado et al. (2019), holding that growth mindset was strongly correlated with the achievement results ( $r = .30$ ) and moderately correlated with well-being ( $r = .10$ ), showing well-being acted as the mediator between growth mindset and academic performance. Nonetheless, the research on the relationship between GLM and CET 4 scores was worth mentioning. There was only a weak correlation between GLM and CET 4 scores ( $r = .13, p < .01$ ) in the current study. Based on the same Language Mindset Scale (Lou & Noels, 2017) and CET 4 scores, X. Hu et al. (2022) also confirmed a strong positive relationship between GLM and CET 4 scores of Chinese college



students ( $r = .60, p < .01$ ), implying a difference between the participants in Chinese colleges and in Chinese HVE colleges.

Meanwhile, some studies have endorsed the idea that among foreign language learners, language learning follows the language mindset-meaning system, guiding EFL students to establish GLM through ability and contextual interpretation, with growth- and fixed-oriented language mindsets as the core of the system; moreover, language mindset is related to attribution, effort belief, and achievement goal, and involves learners' self-regulation and emotional experience (M. Lee & Bong, 2019; Lou & Noels, 2019, 2020; Molden & Dweck, 2006; Shao et al., 2019). Therefore, whether the meaning in the well-being scale was attributed to GLM, achievement, CET 4, and positive emotions was checked in this study. The result (see Table 37) showed meaning was significantly related with GLM, respectively, with growth GLB ( $r = .527$ ), growth second language aptitude beliefs (L2B;  $r = .563$ ), and growth age sensitivity beliefs (ASB;  $r = .469$ ), though there was no negative relation between meaning and fixed language mindset (FLM). Participants with a higher level of meaning enjoyed a higher level of achievement ( $r = .906$ ) and positive emotions ( $r = .837$ ), and a marginal correlation between meaning and CET 4 was achieved ( $r = .115$ ).

## **Research Question 2**

In the well-being profile (i.e., positive emotion, engagement, relationship, meaning, and accomplishment), positive emotion had vast influence on the other four elements and GLM profile. The results showed positive emotions strongly exceeded all the correlations with other well-being dimensions, GLM, and its dimensions (i.e., growth GLB, growth L2B, and growth ASB). Moreover, the results were consistent with the previous studies. In accordance with C. Chen and Cho (2022), positive emotions excelled in the relationship with overall well-being ( $r =$

.89) and was positively related with EFL students' growth mindset in China (Zeng et al., 2016). Considering the aforementioned positive influence of positive emotions, the other hypothesis on the negative emotions came into being; namely, negative emotions had positive emotions with FLM. The results were proved; yet, negative emotions also showed a positive correlation with other well-being dimensions and growth learning mindset, including its dimensions (i.e., growth GLB, growth L2B, and growth ASB).

The aforementioned result is inconsistent with other research where negative emotions had negative relationships with overall well-being ( $r = -.29$ ), positive emotions ( $r = -.42$ ), engagement ( $r = -.18$ ), relationship ( $r = -.26$ ), meaning ( $r = -.21$ ), and accomplishment ( $r = -.06$ ; C. Chen & Cho, 2022). These distinct results displayed a coexisting and synergistic relationship between positive and negative emotions among Chinese HVE students.

Inconsistencies with other results on negative emotions resonated with emotional complexity among East Asian individuals in other studies. According to Grossmann et al. (2016), emotional complexity, referring to an "experience of positive and negative emotions together rather than as opposites" (p. 3), was more prevalent among East Asian individuals compared to North American individuals. In China, researchers confirmed the prevalence of emotional complexity in the Chinese population (i.e., the coexistence of positive and negative emotions) due to their dialectical thinking mode (Schimmack et al., 2002). Based on the model of emotional complexity, Spencer-Rodgers et al. (2010) confirmed its prevalence in China, showing no correlation between positive and negative emotions among Chinese participants but a strong negative correlation between positive and negative emotions among Europeans and Americans. Further, participants from mainland China exhibited high levels of emotional complexity and dialectical thinking compared with Europeans and Americans, and an increase in dialectical

thinking may lead to an increase in emotional complexity (Spencer-Rodgers et al., 2010). Given these findings, emotional complexity research in China cannot be separated from the exploration of Chinese ways of thinking (Grossmann et al., 2016).

Compared with people in other countries, Chinese people tend to have Yin–Yang and Zhong–Yong thinking (Chiu, 2000; S.-H. Liu, 1974). Originating from the harmonious philosophy of Taoism, the Taoism advocators created a concept of “Way,” referring “simultaneously to direction, movement, method, and thought” (Peterson & Seligman, 2004, p. 42), and depicted by two extremes of yin and yang to describe a changeable, interconnected, and contradictory universe (S.-H. Liu, 1974). Therefore, the idea of Yin–Yang thinking is strongly ingrained in Chinese traditional beliefs, holding that everything in the world is a constant dynamic opposition of two complementary forces (L. Lu, 2001). The Yin–Yang thinking mode guides Chinese people to be cautious in prosperous times and optimistic in difficult ones (Ji & Chan, 2017). In extreme cases, such as the severe acute respiratory syndrome epidemic, when faced with extreme difficulties and threats, Chinese individuals were more likely to create positive outcomes in adverse circumstances and vice versa; therefore, Chinese people were more likely to be cautious in favorable circumstances (Ji & Chan, 2017; Ji et al., 2004).

Besides a Zhong–Yong mindset, the core of harmony in Confucianism, advocating avoiding contradictions and extremities, and having a balanced mind to keep stable and harmonious have also significantly impacted Chinese people’s emotion and mentality (Chiu, 2000; He & Li, 2021). With a peaceful and upbeat attitude and the concept of harmony and difference, Chinese people tend to make flexible coping mechanisms under changes in the surrounding environment (He & Li, 2021). Among Chinese college students, participants with higher levels of Zhong–Yong thinking were likely to apply healthy coping mechanisms to deal

with stress in their lives, minimize unhealthy coping and rumination, lessen depression symptoms, and regulate participants' mental health and improve their well-being (He & Li, 2021; X. Yang et al., 2016). Therefore, Zhong–Yong philosophy and Yin–Yang thinking could buffer against young people's negative emotions and change participants' negative emotions into initiatives, illustrating why negative emotions in the current study benefitted students' well-being and GLM.

In addition to the emotions in PERMA, the result on meaning was worth mentioning. Meaning refers to having value and purpose in life (Seligman et al., 2009). Kern et al. (2015) defined meaning as “attaching to or being a part of something bigger than oneself” (p. 263). Hypothetically, students with higher level of meaning tend to achieve the highest and have a higher level of GLM. The hypothesis was supported with the result that there was the strongest correlation between meaning and well-being profiles, especially the achievement ( $r = .906$ ) and a strong correlation between meaning and GLM ( $r = .583$ ).

The result resonated with other global survey findings, where happiness, meaning, and engagement could predict subjective well-being (SWB), among which meaning and engagement excelled with higher correlations and there were correlations among happiness, meaningfulness, and well-being; moreover, despite distinct cultures and religions, the global participants' happiness and meaningfulness levels contributed to their well-being levels (Vella-Brodrick et al., 2008). Thus, living a meaningful and happy life meant a higher level of well-being.

Further, in Huang et al.'s (2023) study, meaning in life was positively associated with positive emotions, life satisfaction, personal growth, positive coping mechanisms, and perseverance, and negatively associated with a range of negative factors such as negative emotions, depression, anxiety, and negative coping (Huang et al., 2023). However, on the basis

of the current study, meaning was positively related with negative emotions in a moderate manner ( $r = .303$ ), suggesting a complicated emotional status among HVE students in China.

Likewise, meaning was positively related to the GLM ( $r = .583$ ) in the current study. Yeager and Dweck (2012) found students with a growth mindset had a greater sense of purpose and conviction and were more resilient to setbacks. This growth mindset increased their resilience, during which students could regain a high level of well-being to combat adversities in life. Therefore, growth mindset coexisted with meaning in life, serving as a buffer against negative factors, enhancing students' academic performance, and contributing to students' well-being (Connor & Davidson, 2003; Ryff et al., 1998; Ryff & Singer, 1996, 2000). Whereas fixed mindset holders had problems in developing resilience (Blackwell et al., 2007), it was difficult for fixed mindset holders to develop meaning in life. Therefore, students' academic performance could be improved via developing a growth mindset and stronger resilience (Blackwell et al., 2007; Hong et al., 1999), during which students' meaning in life would be improved. Thus, the strong correlations between meaning, achievement, and GLM were achieved.

### **Research Questions 3**

Based on the result of RQ1, there was a significant positive correlation between well-being and GLM, and a marginal positive correlation between well-being and CET 4 scores. X. Hu et al. (2022) found EFL learners with a growth mindset had a higher level of grit in learning English and enjoyed a higher level of English learning enjoyment, which ultimately improved their English achievements. Moreover, among Chinese EFL learners, higher level of grit predicted a higher level of SWB and classroom enjoyment (P. Yang, 2021). A path analysis among Chinese EFL learners also found foreign language learning enjoyment directly impacted participants' language scores (Jin & Zhang, 2021). Therefore, hypothetically, in the group of

growth composite language mindset holders, there was a positive relationship between well-being and CET 4 scores. The hypothesis was proved among participants whose composite language mindset score fell in the growth category, implying that a higher composite language mindset score was associated with a higher ability to adopt a FLM. The obtained result indicated a weak positive correlation between CET 4 scores and well-being among participants who exhibited a growth language mindset. This finding suggests that as CET 4 scores increase, there tends to be a slight elevation in levels of well-being among individuals with a growth-oriented perspective towards language learning. However, the strength of this correlation was relatively weak, indicating other factors beyond language mindset and academic achievement likely contribute to individuals' overall sense of well-being. Further research may be warranted to explore the complex interplay between language mindset, academic performance, and psychological well-being in greater detail.

#### **Research Question 4**

When CET 4 scores, well-being, and language mindset differences were compared among various demographic groups, Mann-Whitney U tests and Kruskal-Wallis tests were used to test whether the distribution of well-being levels, GLM, and CET 4 were different in terms of gender, year of study, hometown locales, accommodation, future degree, family planning, and CET 4 times. CET 4 scores showed significant differences in terms of gender, family planning, and hometown locales. Specifically, female students, only children, and students from urban China excelled in CET 4 scores, indicating gender difference, family planning, and urban and rural differences may have been the reasons for participants' CET 4 performance in China.

In fact, the study results went along with a series of studies. There was a significant gender disparity in CET 4 achievement among Chinese EFL learners, and female participants

achieved superior record than male participants (B. Zhang & Du, 2004). Further, female EFL learners outperformed male learners in vocabulary cognition, application, and CET 4 scores (Duan, 2020; G. Jiang & Chen, 2013), supporting how Chinese female HVE students outperformed their counterparts in this study.

Excluding external factors, gender differences on language learning lied in the significant differences in internal factors (i.e., cognition, self-awareness, and interest) between female and male language learners (J. Zhang, 2022). The gender disparity in English learning is more attributable to EFL learners' self-construction in their mind, which is more interdependent and interpersonal; specifically, female learners were more likely to be involved in interpersonal interactions and used to investing in relationships with others and were better at envisioning themselves in future oral communication scenarios, which contributed to their greater motivation to learn English (Henry, 2010; Henry & Cliffordson, 2013). In terms of strategy, in the Chinese EFL population, female EFL learners were more adept at using English learning strategies in cognition, metacognition, and social strategies than their male counterparts (S. Xue, 2015). In particular, female EFL learners were significantly more likely to use word-learning strategies than male learners, which greatly impacted their English achievement levels (Gu, 2002). Thus, female learners were equipped with abilities to be good language learners.

Likewise, the external environment (i.e., social and culture, family background, and school environment) also contribute to unbalanced distribution of CET 4 performance. Institutionally speaking, due to the one-child policy implemented in 1980 in China (Tseng et al., 1988), the different English class performances between only children and non-only-children were observed. In accordance with Y. Hu (2022), there were significant differences in the perceived teacher support activities between only children and non-only-children; as a result,

only children had higher perception on teachers' support activities and better classroom performance.

The other policy implemented in China was called Hu Kou (i.e., a household system), which also led to uneven distributions of CET 4 performance. The Hu Kou system categorized Chinese households as agricultural and nonagricultural households, leading to rural and urban gap and various inequalities in Chinese society (Tian & Chen, 2020). Especially in English language education, there were significant disparities between urban and rural China in terms of qualifications and quantities of English language teachers, and the frequency of language instruction (Wu, 2008). Compared with English learners in rural areas, English learners in big cities could have access to more qualified English teachers, modern teaching equipment, native English speakers, and opportunities to travel abroad even from the kindergarten age; therefore, the unbalanced English education resources resulted in a huge causal factor in the English achievement gap between urban and rural university English learners (A. Feng, 2005), which were consistent with the findings in the current study.

In addition to the distinct CET 4 achievements in terms of gender, family planning, and hometown locals, the language learning mindsets also distributed differently between female and male HVE students, showing male participants endorsed FLM more than their counterparts. However, the finding was inconsistent with others. According to Lou and Noels (2017), the developers of the LMI scale found no gender differences in language growth mindset. As for growth mindset research, findings of gender differences have varied. Growth mindset was prominent for female participants in some studies, the opposite was true in others, and some studies showed no difference between the two (Diseth et al., 2014; Khajavy et al., 2020; Spinath



et al., 2003; Tarbetsky et al., 2016); therefore, this conclusion remains to be explored further in the future.

Moreover, GLM holders thought language ability could be developed through dedication and hard work, and FLM holders thought successful language learners' talents were inherent and could not be altered (Mercer & Ryan, 2009). Consequently, it was rational to presume the distribution of composite language mindset scores across CET 4 times were different. Then, the Kruskal-Wallis H test and the post hoc test in the current study proved the result, showing the CET 4 one-time group statistically differed from the three- and four-time groups, and the two-time group significantly differed from the four-time group. More importantly, based on the results (see Table 33), CET 4 one-time members tended to be GLM holders; therefore, the different distribution indicated the less times taking the CET 4, the higher possibility of being a GLM holder. Nonetheless, no corresponding research could be found to compare CET 4 times and language mindset.

### **Summary Discussion of Results**

To summarize, all the research questions were addressed: high levels of well-being bred higher levels of growth-oriented language mindset and predicted higher levels of university English achievement (i.e., CET 4 scores) in the Chinese HVE English learner population. Additionally, the engagement of positive emotions also played an important role in increasing well-being levels, growth mindset acquisition, and CET 4 score improvement. However, unlike the findings of other global groups (e.g., Europe, the United States), negative emotions holders did not imply a negative relationship with positive emotions; rather, a positive correlation between negative and positive emotions was proved, so as negative emotions and individuals' well-being and growth language mindset, the more salient outcome of this study. Based on the

unique Chinese culture, the Chinese ways of thinking (i.e., Yin–Yang and Zhong–Yong thinking patterns) stood out to impact the participants, implying the study of emotions and thinking patterns could not be separated from the dissection of the local culture.

Furthermore, the demographic characteristics in terms of well-being levels, language mindsets, and English achievement (i.e., CET 4 scores) also demonstrated the unique characteristics of Chinese society, especially under the influence of the one-child policy, where the only children enjoyed more environmental and resource advantages compared to the multichildren, and were more inclined to obtain high levels of CET 4 achievement and GLM. The imbalance in the distribution of educational resources between urban and rural areas similarly contributed to the urban participants achieving better CET 4 scores than nonurban participants. Finally, the different CET 4 attempts affected language mindsets, highlighting the influence of repeated exposure to the CET 4 exam on language mindset development. As participants took the CET 4 exam more frequently, their CLM scores tended to increase, implying that repeated engagement with the CET 4 exam may lead to a higher tendency toward adopting a FLM. Thus, although there is no limit on the number of CET 4 attempts, it is not advisable to take more than one time.

### **Implications**

The goal of education is to cultivate comprehensive talents in ethics, intellect, physique, social skills, spirit, and aesthetics, fitted with the multidimensional dimensions of student well-being (Adams et al., 2000). Given the importance of vocational education and college English achievement (i.e., CET 4 scores) in China (Zheng & Cheng, 2008), HVE practitioners cannot afford to ignore its importance for HVE English learners, where the optimal allocation of educational resources and the cultivation of well-being and GLM for the students are crucial.

## **Implications for Educational Policymakers**

In view of the unequal distribution of educational resources between urban and rural areas, the aftermath of the 40-year-long one-child policy (Tian & Chen, 2020; L. Wang, 2012), and the unbalanced distributions of educational resources in the current study, a reallocation of educational resources should be emphasized by policymakers in China. Education policymakers should allocate more funds to suburban and rural areas to support the construction of infrastructure, hardware facilities, and English teacher training in these areas to narrow the urban–rural gap. Further, the China Central Government should also provide teachers with better resources to ensure educational equity. Similarly, faculty training programs and financial support from the local government are also indispensable to cultivating high-quality teachers and allocating abundant educational resources to narrow the gap between urban, suburban, and rural areas at the source.

In modern China, the emergence of migrant workers has brought new threats to the education and mental health of left-behind children. According to Zhou et al. (2014), students with migrant parents face severe threats both financially and psychologically, and the absence of both parents could directly affect academic performance. Further, the longer parents leave, the lower the child’s academic performance. Hence, policymakers in education departments at all levels in large, medium, and small cities should also pay attention to the education of students with migrant parents and continuously formulate and improve related policies to provide them with enough opportunities to access better education resources, such as better schools, facilities, and neighborhoods. Improving policies to accommodate migrant families in cities may help empower them to study and live with their parents in cities, protecting their physical and

psychological health and facilitating them to obtain opportunity to receive a high-quality education, both in cities and in suburban and rural places.

### **Implications for HVE Administrators**

The results of the current study showed students' well-being was associated with a positive environment. Based on these study results, HVE administrators should create a friendly campus environment and develop policies conducive to enhancing students' well-being. It is beneficial for HVE administrators to improve the school environment and the allocation of teaching resources by offering beneficial hardware equipment, such as infrastructure, facilities, and teaching equipment. Moreover, software equipment, a friendly atmosphere, rules and regulations, and grading systems should be offered, all of which combine to cultivate a friendly and positive campus atmosphere for students.

In addition, positive education programs could improve Chinese youth's social, emotional, cognitive, behavioral, and moral abilities, and self-efficacy and resilience because participants in positive programs enjoy higher well-being and flourishing (Shek & Sun, 2010; Shek & Yu, 2011; Sun & Shek, 2021). For example, the Positive Youth Development program in China views youth development as a valuable asset that can help young people adapt to their environments, cope with challenges, and empower their psychological competitiveness in terms of resilience, emotions, and ethics (Shek et al., 2019; Zhu & Shek, 2020). At the same time, conducting positive language education has been proven to enhance the language classroom atmosphere and students' SWB, boost their positive emotions, improve their general attitude toward life, and give students an added value beyond language knowledge, which is to know more about themselves and build a better version of themselves (Proietti Ergün & Ersöz Demirdağ, 2023). Thus, HVE administrators should vigorously develop positive language

programs in higher vocational colleges to improve students' emotional, cognitive, behavioral, self-efficacy, and resilience attitudes; help HVE students get rid of stigma; understand the meaning of living; and promote their life satisfaction.

### **Implications for HVE Educators**

Given the intimate relationship between positive teaching and well-being in foreign language classrooms (Mercer et al., 2016), HVE educators are responsible for enhancing HVE students' well-being in English classes and developing a GLM. Hence, EFL educators are responsible for launching a positive education in English classes. Before that, HVE teachers should be positive educators and GLM holders, believing language ability could be developed through dedication and hard work, mindset is malleable, and anyone who could make a change is determined. Although HVE students have been labeled with harmful stigmas, HVE English teachers could change the situation by empowering them to find the meaning of life, break through the stereotype, develop their potential fully, and live a good life with enthusiasm and hope in their minds.

Having been equipped with the knowledge of positive psychology and positive education, HVE teachers could foster a positive teacher–student relationship, encourage HVE students to think outside the box, and cultivate them to be GLM holders to change their English learning and life path in the long run. A student-centered English class would be required to achieve that goal because teacher-centered teaching could deteriorate students' language learning anxiety, reduce learning interest and subjective motivation, and put HVE students into a passive language learning mode. Nonetheless, in a globalized world, positive HVE English teachers should be familiar with cutting-edge technologies and apply them to English classes to dissect the intricate language learning process and present exotic cultures via multiple media resources, technology,

and creative class formats (e.g., videos, games, flip-flop classes) to stimulate HVE English learners' interests and facilitate them to make a change in English classes.

In view of the positive correlation of negative emotions on well-being and GLM in the findings, the traditional Chinese thinking styles of Yin–Yang and Zhong–Yong thinking may play a role in regulating and transforming students' negative emotions. Therefore, EFL teachers may carry out lectures on Chinese culture and appreciation of traditional Chinese thinking styles in the English language classroom, which could help students realize negative emotions in life could be transferred into a good thing through traditional Chinese philosophy and wisdom. Gradually, students could master these ways of thinking to transform the long-existing negative emotions into motivation for learning and inspire them to make changes to their way of thinking. However, EFL teachers must emphasize to students that only a moderate application of traditional Chinese thinking is beneficial. Some research has shown inflated Zhong–Yong thinking could cause unfavorable feelings and endanger psychological well-being (PWB). For example, tolerating conflict over time could produce distress, maintaining outward harmony by repressing true feelings and thoughts, which may endanger psychological health; further, negative feelings like disappointment and frustration may develop due to unsuccessful conflict-free attempts (Schoenmakers et al., 2015; Weber et al., 2011; X. Yang et al., 2016). Thus, prolonged exposure to Zhong–Yong thinking constraints could threaten and challenge students' mental health (X. Yang et al., 2016).

Students' perceptions of meaning in life in this study also contributed to their CET 4 achievement, and research has shown that enhancing students' meaning and resilience can also contribute to progress in academic achievement (Blackwell et al., 2007; Hong et al., 1999); thus, there is a strong correlation between resilience and meaning in life. Therefore, EFL teachers can

improve students' academic performance in English by enhancing their students' learning resilience to promote their meaning of learning and life, gradually improving their English learning outcomes.

### **Implications for HVE Parents**

Because parenting styles have been shown to be correlated positively with students' mental health among Chinese college students, and mental health of students has been shown to be a major contributor to their psychological well-being (Ding et al., 2022), HVE parents are responsible for improving HVE students' well-being. However, in modern China, fierce educational competition, education anxiety, and adolescent depression is universal. Thus, parents should put students' mental health and well-being as the prime concern of the family and share the stress with their children rather than put much heavier pressure on their shoulders. Having been aware that score-oriented English learning could kill their interests, and in the long run, students might misinterpret the meaning of learning and living, HVE parents should guide their children to take a long-term view of their lives rather than focusing on immediate scores. In an HVE college, parents should take care to cultivate students' self-esteem, self-confidence, and ideals, and develop students' vocational talents as a guideline to help develop a GLM to stimulate English learning, empower vocational development with English, live a meaningful life, and pursue vocational flourishing.

### **Implications for HVE Students**

In view that well-being and growth mindset could benefit HVE students' CET 4 achievements, HVE students should put their own well-being and mental health as a priority and a fundamental part of their life because pursuing external achievements (e.g., CET 4 scores) at the expense of physical or psychological health is undesirable. Second, because excessive

negative emotions may affect someone's physical and psychological health, HVE students should confront with their unsatisfied English scores, language anxiety, job-hunting stress, and low self-esteem due to the stigma of HVE and improve their lives through several activities, such as having outdoor exercise to boost dopamine in the body and create happy hormones to change from the inside out. At the same time, making new friends and communicating with them frequently can eliminate insecurity and confusion. More importantly, they can learn about ancient Chinese philosophy and wisdom through books and the Internet and appreciate their own lives and the meaning of life from a broader perspective, rather than simply focusing on their immediate achievements, difficulties, and pressures, and reestablishing new meaning and goals in life.

HVE students should strive to have a growth mindset, constantly telling themselves everything will be better through continuous effort and practice, especially in English learning, where continuous effort, practice, and exercise make a difference. With this growth mindset, students can enjoy the process of learning, take the results less seriously, and live a more enjoyable life.

### **Strengths**

This study assessed the psychological health, language learning mindsets, and CET 4 scores of HVE students. The results were discovered to be in line with the development needs of contemporary China in developing HVE, promoting the psychological health of young people, and realizing the Chinese Dream. Furthermore, this study evaluated the latest status quo of HVE students' well-being, language learning mindset, and English achievements to empower HVE policymakers and practitioners to conduct the further reform policies of HVE. Moreover, it extended the well-being studies on emotional complexity, meaning of life, and Chinese



dialectical thinking patterns. Specifically speaking, the findings of this study on negative emotions may inspire HVE researchers to focus on the complexity of Chinese emotions and the influence of traditional Chinese philosophical ideas and ways of thinking on HVE students' well-being and thinking patterns while studying the well-being and language learning mindset among Chinese HVE students. More importantly, however, the study illuminated to HVE practitioners that meaning in life could facilitate HVE students to obtain a higher well-being level, become GLM learners, and achieve higher English scores. Thus, guiding HVE students to search for meaning in their lives will benefit HVE language teaching pedagogy.

### **Limitations**

Given the strengths outlined above, this study had several limitations that should be mentioned. In terms of sample size, although the findings of this study were consistent with others, the sampling approach was limited to one HVE institution in Shanghai. Even though the students of this institution came from every province in China, the sample size was still too small to summarize comprehensively the relationship between well-being, language learning mindset, and English language achievement of HVE students across the country, especially to conclude the influence of negative emotions and meaning on students' well-being and language mindsets.

Methodologically speaking, as a cross-sectional study that focused on evaluating students' status quo of well-being levels, language mindset levels, and CET 4 scores, the results of the study may reflect short-term psychological indications and English language results of the participants at the time of the questionnaire test rather than indicating a sustained psychological and achievement status of the HVE students for a long time.

As for the questionnaire design, the limitation lies in several aspects. First, the dependent variable of CET 4 scores should be mentioned. To protect subjects' privacy (Kokolakis, 2017),

the CET 4 score was included as a self-reported field. Considering the research aimed to investigate the indirect data from foreign language learners, such as their learning practices and psychological conditions (i.e., attitudes and beliefs), and the research subjects and privacy should be well-protected (Kokolakis, 2017; Terrell, 2022), self-reported measures stand out when “respondents are asked to report directly on their behaviors, beliefs, attitudes, or intentions” (Lavrakas, 2008, p. 804). As a result, the dependent variable (i.e., CET 4 scores) was self-reported by participants. The risk of representativeness and measurement inaccuracy should be viewed cautiously due to environmental factors, memory errors, or personal desires (Coughlan et al., 2009; Lavrakas, 2008). Additionally, the influence of social desirability may bias self-reported data (van de Mortel, 2008); namely, participants may choose a higher score to record instead of their accurate scores due to wanting to please and appear to be more competent or skilled. Because the CET is administered twice a year in China (i.e., first in June and second in December; J. Yan & Huizhong, 2006), participants might take the examination more than once. Thus, a clarification about their scores is needed. To delimit the inaccuracy, the item was designed to be the latest CET 4 scores. Additionally, a link to the China Education Examination website (<https://cet.neea.edu.cn>) for score inquiry was appended to the survey, although it was unclear how many students used this tool to verify their CET 4 score.

More importantly, ensuring the accuracy and reliability of the self-reported CET 4, the outliers of self-reported data should be recognized and eliminated. Outliers, in this case, refer to scores that significantly deviate from the typical range of scores. These outliers can distort statistical analyses and affect the validity of research findings. To address this issue, a trimming process, involving identifying and removing outliers from the dataset is employed. In this scenario, the criteria for identifying outliers were established in accordance with guidelines

outlined by Pallant (2016) and specific criteria set forth by authoritative body, the National College English Testing Committee of China (H. Wang et al., 2023; Z. Yao et al., 2023). Namely, the scores, lower than 220 and higher than 710, that would not be reported by the National College English Testing Committee of China would be regarded as outliers and be eliminated, since these data can introduce biases that skew the results. The decision to trim outliers was based on the need to ensure that the data accurately represented the intended population and to maintain the integrity of statistical analyses. Outliers falling below 220 and above 710 were deemed as beyond the accepted range and were subsequently removed from the dataset. By trimming the outliers, the researchers aimed to mitigate the potential bias introduced by self-reported data and to promote the normality of the CET 4 score distribution. Though the trimmed CET 4 distribution is still non-normal, this process facilitates more accurate and reliable analyses, ensuring that the research outcomes are robust and reflective of the true characteristics of the population under study.

Furthermore, although positive emotions and the perception of meaning in life emerged as significant factors contributing to high-level well-being and growth language mindset, the specific determinants leading to lower well-being and fixed language mindset remain uncertain. Particularly, in the demographic analysis, it is noteworthy that factors in each family (e.g., family income, parents' educational background, parents' occupation) led to discrepancies on participants' psychology, mindset, and performance.

### **Areas for Future Research**

Future research endeavors can be pursued from multiple angles based on the findings of this study. First, expanding the sampling scope to encompass all HVE institutions in Shanghai,

extending to southeastern China, and eventually nationwide would enable a comprehensive evaluation of students' overall well-being, language learning mindset, and English performance.

Methodologically, longitudinal studies spanning 4 years could be undertaken to track participants' well-being, language mindset, and performance in the CET 4. These longitudinal studies would not only provide insights into the malleability of well-being and growth mindset but also allow for the assessment of the effectiveness of positive classroom interventions by EFL teachers and school-related positive education policies.

Regarding the survey, English scores and demographics could be updated. To enhance the accuracy and reliability of future research, data collection efforts could involve obtaining information from university records and national data statistics systems while ensuring the classification of participants' personal information. Additionally, expanding demographic inquiries to include participants' family upbringing background, such as economic status, parents' education level, and career direction, would help elucidate the influence of family environment on psychological well-being and English achievement. Furthermore, considering phenomena like population mobility and the proliferation of Internet technology, future research should incorporate factors such as farmer migration (Fang & Yen, 2006) and Internet device usage (Xie et al., 2006). Investigating the impact of Internet usage on HVE students' well-being and language mindset in the context of China's evolving economy and social culture would provide valuable insights into potential threats posed by technological advancements. By addressing these aspects in future research endeavors, a more comprehensive understanding of the factors influencing students' well-being and language learning outcomes can be attained.

## Conclusion

In conclusion, this study identified the positive relationship between well-being, GLM, and CET 4 scores among Chinese HVE students. Spearman correlations were used to demonstrate well-being and GLM predicted higher CET 4 scores. Additionally, positive emotions played a positive role in promoting engagement, relationships, meaning in life, health, and GLM. Meaning in life had a strong effect on achievement and GLM. Although negative emotions were positively correlated with fixed language thinking, a weak positive relationship between negative emotions and GLM implied the unique thinking and emotional patterns of HVE students in China.

Furthermore, various demographic differences were detected via Mann-Whitney U and Kruskal-Wallis H tests. In terms of CET 4 performance, women, only children, and urban participants were more likely to achieve higher CET 4 scores. Although women were better at language learning, the misallocation of family resources and educational resources between urban and rural areas were threats to education equity. In terms of language mindsets, male participants tended to be FLM holders. Therefore, in the group of English learners in HVE colleges, the relationship between the fixed thinking mode of male students and their lower CET 4 scores should be recognized by EFL teachers. In addition, distribution differences in family resources, and urban and rural educational resources, should also be of concern to educational policymakers and administrators to ensure education equity and facilitate HVE students' well-being and English performance.

Overall, positivity could be a key to renew HVE students' curiosity, reshape their thinking mode, develop their potential, and serve as a catalyst for their achievement. At the same time, the CET 4 certificate and language learning ability could be a crucial support for HVE

students to stand out in their future professions. Additionally, the well-being level and GLM of HVE students will benefit them in their future workplaces and in their life. Against the background of vigorously developing vocational education in China, this study put forward a new orientation for HVE practitioners that positive environment, positive programs, and positive class education could equip HVE students with the ability to have full potential regardless of the stereotypes and stigmas reflected by educational systems and society. Last but not the least, this study may contribute to a holistic and healthy development of China's HVE students in the hope that this group will make a greater contribution to the pursuit of the Chinese Dream, and China's prosperity, in the long term.

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## Appendices

### Appendix A. A Survey on Well-Being, Language Learning Mindset of Chinese EFL Learners in Chinese

关于民办职业技术大学英语学习者的幸福感和语言学习心态的调查

亲爱的同学

你好！

我们邀请您参加一项关于民办职业技术大学中国英语学习者的幸福感和语言学习心态的调查。你的参与完全是自愿和匿名的。本次调查主要是为了调查中国民办职业技术大学学生的幸福感、语言学习心态和大学英语四级分数的现状。它由三部分组成：基本问题、幸福感评估和语言学习心态评估。结果将只用于学术研究，你的信息将被保密。请仔细阅读并完成每个问题。这大约需要 10 分钟。

非常感谢你的支持。

成人参与研究的知情同意书

**研究主题：从积极心理学的角度看中国英语学习者的幸福感、语言成长心态和英语表现**

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**关键信息**

我们邀请您参加这项研究。研究只包括自愿参加的人。您可以考虑然后决定您是否要参加。

如果您同意参加这项研究，请悉知，这项研究将涉及：

- 18 岁或以上的个人，在中国民办高职大学学习的英语学习者
- 研究包括问卷
- 一次问卷完成需要约 10 分钟
- 风险不超过日常生活中通常会遇到的风险

**邀请**

我们邀请您参加这项研究。本表中的信息是为了帮助您决定是否参加。如果您有任何问题，请提出。

**为什么邀请您参加这项研究？**

研究对象需要为在中国民办高校学习的英语学习者。

您被邀请参与这项研究是因为您符合对研究对象的身份要求。

### **做这项研究的目的是什么？**

本研究旨在识别中国民办高校英语学习者的幸福感和语言学习模式的现状，并进一步探究英语学习者的幸福感水平、语言学习思维模式和英语成绩之间的关联性。本研究旨在促进民办高校英语学习者的心理健康和英语学习提供重要的依据。

### **这项研究包括什么？**

您需要完成一份网络调查问卷。

问卷包括人口基本信息调查和一个 41 个题项的李克特量表；它将花费您大约 10 分钟时间。您可以通过扫描二维码或点击链接在手机或者电脑上完成该问卷。

### **数据将如何被使用？**

这些数据将只用于本次研究。

您的数据不会被用于未来的其他研究，也不会与其他研究人员共享。

### **参加这项研究可能有什么风险？**

这项研究问卷中的问题可能需要您直接评估自己的心理状态，比如您是否感到孤独、悲伤等，所以您需要直面自己内心的答案。但是，这些问题是在日常生活中遇到的，不会对您造成任何心理伤害。

### **参加这项研究可能有什么好处？**

您不会从这项研究中得到任何直接的好处。

### **参加这项研究对其他人可能有什么好处？**

对科学或社会的好处包括更好地了解中国民办高校英语学习者的幸福感和语言学习模式的现状。然而，您可能无法从该研究中获取任何好处。

### **参加这项研究的替代方案是什么？**

您可以选择不参加此项研究。

### **参加这项研究您需要付出多少费用？**

您参加此项研究不需要任何费用。

### **参加这项研究是否会得到补偿？**

您参加此项研究不会得到任何补偿。

### **如果在这项研究中遇到问题，应该怎么做？**

研究小组成员将密切关注每个参与者的情况。如果参加本研究会产生任何后果，请您立即与本同意书开头所列的任一研究人员联系。

### **您的信息将被如何保护？**

我们将采取合理的措施来确保您的隐私和研究数据的保密性。



数据将以电子数据的方式储存在查普曼授权的云盘，且只有研究小组成员、机构审查委员会(IRB)以及法律规定的其他人员、机构或赞助人可以查阅您的研究参与记录。本研究的信息可能会在科学杂志上发表或在学术会议上汇报，但数据将作为一个整体或汇总数据进行汇报，您的身份将被严格保密。

### 作为研究参与者，您有什么权利？

您可以提出关于这项研究的任何问题，并在同意参加研究之前或在研究期间得到这些问题的回答。

有关研究的问题，请联系本表开头所列的调查员。

有关您的权利问题或对研究的投诉，请联系机构审查委员会（IRB），电话：（714）628-2833 或 [irb@chapman.edu](mailto:irb@chapman.edu)。

### 如果您决定不参加这项研究，或在研究开始后决定停止参与，会发生什么？

您可以不参加这项研究，也可以在研究开始之前、期间或之后的任何时候以任何理由停止参加这项研究（即“退出”）。决定不参加本研究或决定退出不会影响您与研究或查普曼大学的关系。您不会失去您有权享受的任何权益。

### 知情同意书

您是自愿决定是否参加本研究的。签署此表意味着

**(1) 您已阅读并理解本同意书，(2) 您已得到本同意书的解释，(3) 您的问题已得到解答，(4) 您已决定参加本研究。如果您想保存这份同意书，您可以打印或自行留存。**

#### 1. 知情同意书（请点击[这里](#)）

我已阅读了“知情同意书”。在此，我同意在本研究项目中使用我提供的信息作为数据。我也会保留一份本同意书复印件作为个人记录保存。[单选题]

[单选题] \*

同意

不同意 (请跳至第问卷末尾，提交答卷)

#### 2. 性别 [单选题] \*

女

男

#### 3. 大学第几年 [单选题] \*

第一年

第二年

第三年

其他 \_\_\_\_\_

#### 4. 家乡所在地 [单选题] \*

农村

城镇

城市

#### 5. 所属哪个省份 [单选题] \*

安徽

- 北京
- 重庆
- 福建
- 甘肃
- 广东
- 广西
- 贵州
- 海南
- 河北
- 黑龙江
- 河南
- 香港
- 湖北
- 湖南
- 江苏
- 江西
- 吉林
- 辽宁
- 澳门
- 内蒙古
- 宁夏
- 青海
- 山东
- 上海
- 山西
- 陕西
- 四川
- 台湾
- 天津
- 新疆
- 西藏
- 云南
- 浙江
- 其他\_\_\_\_\_

6. 来自哪个学院 [单选题] \*

- 建筑工程学院
- 经济与管理学院
- 外国语学院
- 信息工程学院
- 护理与健康学院
- 智能制造学院

- 食品药品学院
- 艺术学院
- 其他 \_\_\_\_\_

7. 你的学位水平 [单选题] \*

- 本科
- 专升本
- 专科

8. 你大学英语四级成绩（最近的一次） [填空题] \* 【如果需要的话，请点击 CET 4 官网查询: <https://cjcx.neea.edu.cn/html1/folder/21045/4883-1.htm>】

## 第二部分 幸福感自评

本部分是中国英语学习者幸福感自评量表，包括九个方面的内容：积极情绪、参与、关系、意义、成就、整体幸福感、消极情绪、身体健康、孤独等。请根据你自己的实际情况，从 0 到 10 中选择一个数字进行自我评分。

9. 总的来说，你觉得自己的人生在多大程度上有目标性、有意义？ [单选题] \*

- 完全没有    1    2    3    4    5    6    7    8    9    非常有

10. 你有大程度感觉到你在向着自己的目标前进？ [单选题] \*

- 从来没有    1    2    3    4    5    6    7    8    9    总是

11. 你有多大程度上感觉到自己完全沉浸在你所做的事情里？ [单选题] \*

- 从来没有    1    2    3    4    5    6    7    8    9    总是

12. 总的来说，你的健康状况如何？ [单选题] \*

- 非常糟糕    1    2    3    4    5    6    7    8    9    非常好

13. 总的来说，你有多大程度上感觉到开心？ [单选题] \*

- 从来没有    1    2    3    4    5    6    7    8    9    总是

14. 在多大程度上，在你需要的时候，你会得到他人的帮助和支持？ [单选题] \*

- 完全不会    1    2    3    4    5    6    7    8    9    完全会

15. 总的来说，你在多大程度上感到焦虑？ [单选题] \*

- 从来没有    1    2    3    4    5    6    7    8    9    总是

16. 你在多大程度上能达到自己设定的重要目标？ [单选题] \*

- 从来没有    1    2    3    4    5    6    7    8    9    总是

17. 总的来说，在多大程度上，你感觉你做的事是有价值的？ [单选题] \*

- 完全没有    1    2    3    4    5    6    7    8    9    非常有

18. 总的来说，你在多大程度上有正面的、好的感觉？ [单选题] \*

- 完全没有    1    2    3    4    5    6    7    8    9    总是

19. 总的来说，在多大程度上你对事物感到兴奋且感兴趣？ [单选题] \*

- 完全没有兴趣    1    2    3    4    5    6    7    8    9    非常有兴趣

20. 在多大程度上，你在日常生活中感到孤单？ [单选题] \*

- 完全不孤单    1    2    3    4    5    6    7    8    9    非常孤单

21. 在多大程度上，你对现在的身体状况满意？ [单选题] \*

- 非常不满意    1    2    3    4    5    6    7    8    9    非常满意

22. 总的来说，你在多大程度上会感到生气？ [单选题] \*

- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
23. 在多大程度上,你感觉到被爱? [单选题]\*
- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
24. 在多大程度上,你感到自己有能力处理好要做的事? [单选题]\*
- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
25. 在多大程度上,你感到人生有方向? [单选题]\*
- 完全没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常有
26. 和你同龄、同性别的人相比,你的健康状况如何? [单选题]\*
- 非常糟糕 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常好
27. 你对自己与家人和亲密朋友的关系有多满意? [单选题]\*
- 非常不满意 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常满意
28. 总的来说,你在多大程度上感到悲伤? [单选题]\*
- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
29. 在多大程度上,你会在做自己喜欢的事情的时候忘记时间? [单选题]\*
- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
30. 总的来说,你感到多满足? [单选题]\*
- 非常不满足 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常满足
31. 总的来说,你有多幸福? [单选题]\*
- 非常不幸福 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常幸福
15. 总的来说,你在多大程度上感到焦虑? [单选题]\*
- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
16. 你在多大程度上达到你为自己所设定的重要的目标? [单选题]\*
- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
17. 总的来说,在多大程度上,你感觉你做的事是有价值的? [单选题]\*
- 完全没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常有
18. 总的来说,你在多大程度上有正面的、好的感觉? [单选题]\*
- 完全没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常有
19. 总的来说,在多大程度上,你对事物感到兴奋和感兴趣? [单选题]\*
- 完全没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常有
20. 你在多大程度上在日常生活中感觉孤单? [单选题]\*
- 完全没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常有
21. 你在多大程度上对你现在的身体状况满意? [单选题]\*
- 非常不 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常
22. 总的来说,你在多大程度上感到生气? [单选题]\*
- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
23. 多大程度上,你感觉到被爱? [单选题]\*
- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
24. 你在多大程度上感到自己有能力处理好要做的事? [单选题]\*
- 从来没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○总是
25. 在多大程度上,你感到人生有方向? [单选题]\*
- 完全没有 ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○非常有

26. 和你同龄同性别的人相比，你的健康状况如何？ [单选题] \*  
非常糟    1    2    3    4    5    6    7    8    9    非常好
27. 你对自己与家人和亲密朋友的关系有多满意？ [单选题] \*  
非常不    1    2    3    4    5    6    7    8    9    非常
28. 总的来说，你在多大程度上感觉到悲伤？ [单选题] \*  
从来没有    1    2    3    4    5    6    7    8    9    总是
29. 总的来说，你在多大程度上会在做自己喜欢的事情时忘记时间？ [单选题] \*  
从来没有    1    2    3    4    5    6    7    8    9    总是
30. 总的来说，你感到多满足？ [单选题] \*  
非常不    1    2    3    4    5    6    7    8    9    非常
31. 总的来说，你感到多幸福？ [单选题] \*  
非常不    1    2    3    4    5    6    7    8    9    非常

### 第三部分 语言模式评估

在本部分一共有 18 个句子，请指出你们是同意还是反对这些句子所表达的观点。每个观点有 6 个选项：1（强烈反对）、2（反对）、3（略微反对）、4（略微同意）、5（同意）和 6（强烈同意）。所有这些选项没有对错之分，所以同学们无需思考太久，只需要跟随内心的感受做出选择即可。

#### 32. 整体语言能力信念[矩阵量表题] \*

	强烈反对	反对	略微反对	略微同意	同意	强烈同意
你有一定的语言能力（运用中文，进行听、说、读、写各方面活动的的能力），但是无法通过努力来提升它。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
你的语言能力是你身体的一部分，你无法提升它。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
实话实说，你无法真正提升你的语言能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
不管你是谁，你能够极大地提升你的语言能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
你总是能够极大地提升你的语言能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
不管你现在的语言能力如何，你总是能够极大地提升你的语言能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. 外语能力信念[矩阵量表题] \*

	强烈反对	反对	略微反对	略微同意	同意	强烈同意
很大程度上，一个人的生理特征（比如大脑结构）会决定他/她学习英语的能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
你很难提升你的英语水平。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
许多人即使非常努力学习也无法学好英语，因为他们缺乏语言天赋。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
你总是能够提升你的英语能力。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
在学习英语的过程中，如果你努力，就总是能够学得更好。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
只要你真的学习了，就总是能够在现有基础上继续提升英语水平。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. 外语学习年龄敏感度信念：[矩阵量表题] \*

	强烈反对	反对	略微反对	略微同意	同意	强烈同意
一个人英语说得好不好，取决于他/她是否在很小的时候就开始学英语。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
超过一定年纪之后，人们就很难学好英语了。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
假如你超过了一定年纪，不管如何尝试，你的英语水平也很难进步。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
不管年龄大小，只要努力尝试，人人都能学好英语。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
人们能否学好英语不取决于年龄大小，只要努力，任何人都能流利地说英语。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
无论在什么年级开始学习英语，人们总是能够学好英语。	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

本次问卷结束。  
感谢参与。

## **Appendix B. A Survey on Well-Being, Language Learning Mindset of Chinese EFL Learners in English**

Dear Participants,

You are invited to participate in a survey on the well-being, language learning mindset of Chinese EFL learners in private vocational and technical university. Your participation is strictly voluntary and anonymous.

The survey is mainly to investigate the current situation of students' well-being, language learning mindset, and CET 4 scores in a Chinese private vocational and technical university. It consists of three parts: basic questions, assessment of well-being, and assessment of language learning mindset. The results will be used only for academic research and your information will be kept confidential.

Please read and complete each question carefully. It takes you about 10 minutes.

Thanks a lot for your support.

### **ADULT INFORMED CONSENT TO PARTICIPATE IN RESEARCH**

**Title of Study: A Positive Psychology Perspective on Chinese EFL Students' Well-Being, Language Growth Mindset and English Performance**

#### **Members of the Research Team**

Principal Investigator: Douglas D. Havard, PhD

Office: (XXX) XXX-XXXX

Researcher: Qian Wei

Email: xxxxx@xxxxx.edu

#### **Key Information**

You are being asked to take part in a research study. Research studies include only people who choose to take part. You should take your time deciding whether you want to participate.

If you agree to participate in this study, this research will involve:

- Individuals who are 18 years or older, EFL students studying in a private university in China
- Procedures will include a questionnaire
- One questionnaire will take approximately 10 minutes
- Risks that do not exceed what would typically be encountered in daily life

#### **Invitation**

You are invited to take part in this research study. The information in this form is meant to help you decide whether to participate. If you have any questions, please ask.

#### **Why are you being asked to be in this research study?**

The research subjects should be the EFL learners studying in a private university in China.

You are being asked to be in this study because you meet the criteria (18 years or older, and EFL students studying in a private university in China).

**What is the reason for doing this research study?**

This research seeks to identify the status quo of well-being and language learning mindsets among EFL learners in a private vocational university and further investigate the correlations among EFL learners' well-being levels, language learning mindsets (growth or fixed), and English language achievement.

The research aims to make a contribution to improving EFL learners' well-being and language learning in private universities in China.

**What will be done during this research study?**

You will be asked to complete an online questionnaire.

The questionnaire contains a demographic survey and a 41-item Likert survey; it will take you approximately 10 minutes and you may complete them via your phone or computer by scanning a QR code or clicking a link.

**How will my data be used?**

The data will only be used for this study.

Your data will not be used in future research studies or shared with other researchers.

**What are the possible risks of being in this research study?**

The questions in the questionnaire may require you to directly assess your own psychological state, such as whether you feel lonely, sad, etc., so you need to face your inner answers directly. However, these questions are encountered in daily life and do not cause any psychological harm to you. Additionally, there is a potential loss of confidentiality if access to your data is acquired from unauthorized individuals; however, the researchers will not collect any identifiable data (e.g., names, addresses) throughout the study and all nonidentified data will be stored in the Chapman cloud server.

**What are the possible benefits to you?**

You are not expected to get any direct benefit from being in this study.

**What are the possible benefits to other people?**

The benefits to science or society may include a better understanding of the status quo of well-being and language learning mindsets among EFL learners in Chinese higher vocational education. However, you may not get any benefit from being in this research study.

**What are the alternatives to being in this research study?**

Instead of being in this research study, you can choose not to participate.

**What will participating in this research study cost you?**

There is no cost to you to be in this research study.

**Will you be compensated for being in this research study?**

You will not be compensated for your participation in this research study.



**What should you do if you have a problem during this research study?**

Your welfare is the primary concern of every member of the research team. If you have a problem as a direct result of being in this study, you should immediately contact one of the people listed at the beginning of this consent form.

**How will information about you be protected?**

Reasonable steps will be taken to protect your privacy and the confidentiality of your study data. The data will be stored electronically in the Chapman cloud storage provider and will only be seen by the research team during the study.

The only people who will have access to your research records are the research team members, the Institutional Review Board (IRB), and any other person, agency, or sponsor as required by law. Information from this study may be published in scientific journals or presented at scientific meetings, but the data will be reported as group or summarized data, and your identity will be kept strictly confidential.

**What are your rights as a research participant?**

You may ask any questions about this research and have those questions answered before agreeing to participate in the study or during the study.

For study-related questions, please contact the investigator(s) listed at the beginning of this form. For questions concerning your rights or complaints about the research, contact the Institutional Review Board (IRB) at (714) 628-2833 or [irb@chapman.edu](mailto:irb@chapman.edu).

**What will happen if you decide not to be in this research study or decide to stop participating once you start?**

You can decide not to be in this research study, or you can stop being in this research study (i.e., “withdraw”) at any time before, during, or after the research begins for any reason. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator or with Chapman University [list others as applicable]. You will not lose any benefits to which you are entitled.

**Documentation of informed consent**

You are voluntarily deciding whether to be in this research study. Signing this form means that (1) you have read and understood this consent form, (2) you have had the consent form explained to you, (3) you have had your questions answered, (4) you are 18 years or older, and (5) you have decided to be in the research study. You will be given a copy of this consent form to keep.

1. Informed Consent Form (Please click here to read)

I have read the informed consent form. I hereby grant permission to use the information I provide as data in this research project. I will also retain a copy of this consent form for my own record.  
[Single Choice] \*

Yes

2. Gender [Single Choice] \*

Female

Male

3. Year of Study [Single Choice] \*

- 1st year
- 2nd year
- 3rd year
- Others

4. Hometown locale [Single Choice] \*

- Rural
- Suburban
- Urban

5. Place of origin [Single Choice] \*

- Anhui
- Beijing
- Chongqing
- Fujian
- Gansu
- Guangdong
- Guangxi
- Guizhou
- Hainan
- Hebei
- Heilongjiang
- Henan
- Hong Kong
- Hubei
- Hunan
- Jiangsu
- Jiangxi
- Jilin
- Liaoning
- Macao
- Inner Mongolia
- Ningxia
- Qinghai
- Shandong
- Shanghai
- Shanxi
- Shaanxi
- Sichuan
- Taiwan
- Tianjin
- Xinjiang

- Tibet
  - Yunnan
  - Zhejiang
  - Others
6. Your school [Single Choice] \*
- School of Architecture and Engineering
  - School of Economics and Management
  - School of Foreign Languages
  - School of Information Engineering
  - School of Nursing and Health
  - School of Intelligent Manufacturing
  - School of Food and Drug
  - School of Arts
  - Others
7. Your future degree [Single Choice] \*
- Bachelor degree
  - Top-up degree
  - Associate bachelor degree
8. Your LATEST CET 4 score is [Filling the blank] \* 【If necessary, please refer to the link of CET 4 website: <https://cjcx.neea.edu.cn/html1/folder/21045/4883-1.htm>】

### **Part Two Self-Evaluation of Well-Being**

This part is the Assessment of Well-being, which includes eight aspects: positive emotions, engagement, relationships, meaning, accomplishment, overall well-being, negative emotions and health.

Please choose a number from 0 to 10 to rate yourself. 0 represents the lowest degree and 10 represents the highest degree.

9. In general, to what extent do you lead a purposeful and meaningful life? [Single Choice] \*
- Not at all    1    2    3    4    5    6    7    8    9    Completely
10. How much of the time do you feel you are making progress toward accomplishing your goals? [Single Choice] \*
- Never    1    2    3    4    5    6    7    8    9    Always
11. How often do you become absorbed in what you are doing? [Single Choice] \*
- Never    1    2    3    4    5    6    7    8    9    Always
12. In general, how would you say your health is? [Single Choice] \*
- Terrible    1    2    3    4    5    6    7    8    9    Excellent
13. In general, how often do you feel joyful? [Single Choice] \*
- Never    1    2    3    4    5    6    7    8    9    Always
14. To what extent do you receive help and support from others when you need it? [Single Choice]
- Not at all    1    2    3    4    5    6    7    8    9    Completely
15. In general, how often do you feel anxious? [Single Choice] \*

- Never  1  2  3  4  5  6  7  8  9  Always
16. How often do you achieve the important goals you have set for yourself? [Single Choice] \*
- Never  1  2  3  4  5  6  7  8  9  Always
17. In general, to what extent do you feel that what you do in your life is valuable and worthwhile? [Single Choice] \*
- Not at all  1  2  3  4  5  6  7  8  9  Completely
18. In general, how often do you feel positive? [Single Choice] \*
- Never  1  2  3  4  5  6  7  8  9  Always
19. In general, to what extent do you feel excited and interested in things? [Single Choice] \*
- Not at all  1  2  3  4  5  6  7  8  9  Completely
20. How lonely do you feel in your daily life? [Single Choice] \*
- Not at all  1  2  3  4  5  6  7  8  9  Completely
21. How satisfied are you with your current physical health? [Single Choice] \*
- Not at all  1  2  3  4  5  6  7  8  9  Completely
22. In general, how often do you feel angry? [Single Choice] \*
- Never  1  2  3  4  5  6  7  8  9  Always
23. To what extent have you been feeling loved? [Single Choice] \*
- Not at all  1  2  3  4  5  6  7  8  9  Completely
24. How often are you able to handle your responsibilities? [Single Choice] \*
- Never  1  2  3  4  5  6  7  8  9  Always
25. To what extent do you generally feel you have a sense of direction in your life? [Single Choice] \*
- Not at all  1  2  3  4  5  6  7  8  9  Completely
26. Compared to others of your same age and sex, how is your health? [Single Choice] \*
- Terrible  1  2  3  4  5  6  7  8  9  Excellent
27. How satisfied are you with your personal relationships? [Single Choice] \*
- Not at all  1  2  3  4  5  6  7  8  9  Completely
28. In general, how often do you feel sad? [Single Choice] \*
- Never  1  2  3  4  5  6  7  8  9  Always
29. How often do you lose track of time while doing something you enjoy? [Single Choice] \*
- Never  1  2  3  4  5  6  7  8  9  Always
30. In general, to what extent do you feel contented? [Single Choice] \*
- Not at all  1  2  3  4  5  6  7  8  9  Completely
31. Taking all things together, how happy would you say you are? [Single Choice] \*
- Not at all  1  2  3  4  5  6  7  8  9  Completely

### Part Three Self-Evaluation of Language Mindsets

Instructions: Please rate how much you agree or disagree with these statements. There is no right or wrong answer. We are interested in your personal opinion.

#### 32. General language intelligence beliefs: [Matrix Scale] \*

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. You have a certain amount of language intelligence, and you can't really do much to improve it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Your language intelligence is something about you that you can't improve very much.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. To be honest, you can't really improve your language intelligence.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. No matter who you are, you can significantly improve your language intelligence level.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. You can always substantially improve your language intelligence.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. No matter how much language intelligence you have, you can always improve it quite a bit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. Second language aptitude beliefs: [Matrix Scale] \*

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
7.To a large extent, a person's biological factors (e.g., brain structure) determine his or her abilities to learn English.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.It is difficult to improve how good you are at English.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.Many people will never do well in English even if they try hard because they lack natural language intelligence.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.You can always improve your English ability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.In learning English, if you work hard at it, you will always get better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.How good you are at using English will always improve if you really work at it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. Age sensitivity beliefs about language learning: [Matrix Scale] \*

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
13.How well a person speaks English depends on how early in life he/she learned it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.People can't really learn English well after they reach a certain age.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.Even if you try, the skill level you achieve in English will advance very little if you learn it when you have reached a certain age.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16.Everyone could do well in English if they try hard, whether they are young or old.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17.How well a person learns English does not depend on age; anyone who works hard can be a fluent speaker in English.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18.Regardless of the age at which they start, people can learn English well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

This is the end of the questionnaire.

Thank you for your time.

## Appendix C. Reliability and Validity

**Table C1**

*Reliability of Measures in the PERMA-Profiler Scale*

Dimensions	Variables	Questions	$\alpha$	# of items
Overall well-being	Positive emotion	Q16_P1, Q21_P2, Q23_P3	.895	3
	Engagement	Q14_E1, Q22_E2, Q32_E3	.836	3
	Relationship	Q17_R1, Q26_R2, Q30_R3	.857	3
	Meaning	Q12_M1, Q20_M2, Q28_M3	.891	3
	Achievement	Q13_A1, Q19_A2, Q27_A3	.898	3
	Happiness	Q34	.973	16
Negative emotion		Q18_N1, Q25_N2, Q31_3	.836	3
Health		Q15_H1, Q24_H2, Q29_H3	.914	3
Loneliness		Q23		1

**Table C2**

*Reliability of PERMA-Profiler*

Reliability statistics	
$\alpha$	$n$
.965	23

*Note.* (Q16, Q21, Q23, Q14, Q22, Q32, Q17, Q26, Q30, Q12, Q20, Q28, Q13, Q19, Q27, Q34, Q18, Q25, Q31, Q15, Q24, Q29, Q23;  $n = 23$ ).



**Table C3***Reliability of Measures in the LMI Scale*

Dimensions	Variables	Questions	$\alpha$	# of items
GLB	GLB fixed	Q35_R1-R3	.893	3
	GLB growth	Q35_R4-R6	.950	3
L2B	L2B fixed	Q36_R1-R3	.853	3
	L2B growth	Q36_R4-R6	.913	3
ASB	ASB fixed	Q37_R1-R3	.910	3
	ASB growth	Q37_R4-R6	.947	3
Fixed language mindset	GLB fixed, L2B fixed, ASB fixed	Q35_R1-R3, Q36_R1-R3, Q37_R1-R3	.941	9
Growth language mindset	GLB growth, L2B growth, ASB growth	Q35_R4-R6, Q36_R4-R6, Q37_R4-R6	.954	9

**Table C4***Reliability of LMI*

Reliability statistics	
$\alpha$	$n$
.940	18

*Note.* (Q35, Q36, Q37;  $n = 18$ ).

**Table C5***Reliability of PERMA-Profiler and LMI*

Reliability statistics	
$\alpha$	$n$
.965	41

*Note.* (Q12–Q37;  $n = 41$ ).

**Table C6***Validity of the 23-Item Survey (PERMA-Profiler)*

KMO		.967
Bartlett's test of sphericity	Approx. Chi-Square	31947.515
	<i>df</i>	253
	Sig.	.000

*Note.* KMO = Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

**Table C7***Validity of the 18-Item Survey (LMI)*

KMO		.928
Bartlett's test of sphericity	Approx. Chi-Square	24094.798
	<i>df</i>	153
	Sig.	.000

*Note.* KMO = Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

**Table C8***Validity of the 41-Item Survey*

KMO		.964
Bartlett's test of sphericity	Approx. Chi-Square	57591.994
	<i>df</i>	820
	Sig.	.000

*Note.* (PERMA-Profiler & LMI). KMO = Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

**Table C9***Total Variance Loadings*

Factor	Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.410	44.903	44.903	12.845	31.329	31.329
2	5.398	13.166	58.069	6.339	15.460	46.789
3	2.748	6.703	64.772	6.182	15.078	61.867
4	1.546	3.771	68.543	2.707	6.602	68.469
5	.790	1.927	70.470	.820	2.001	70.470

**Table C10***Factor Rotation Matrix*

Factor rotation matrix	1	2	3	4
Q34_Happiness	.845			
Q21_P2	.842			
Q16_P1	.836			
Q22_E2	.835			
Q33_P3	.834			
Q27_A3	.823			
Q29_H3	.822			
Q20_M2	.814			
Q17_R1	.798			
Q30_R3	.795			
Q15_H1	.794			
Q24_H2	.793			
Q28_M3	.781			
Q14_E1	.780			
Q13_A1	.773			
Q12_M1	.763			
Q19_A2	.757			
Q26_R2	.731			
Q32_E3	.598			
Q37_AS_B_R4		.820		
Q37_AS_B_R5		.813		
Q37_AS_B_R6		.806		
Q36_L2B_R5		.799		

Factor rotation matrix	1	2	3	4
Q36_L2B_R6		.795		
Q36_L2B_R4		.734		
Q35_GLB_R5		.727		
Q35_GLB_R6		.724		
Q35_GLB_R4		.690		
Q37_ASB_R3			.873	
Q35_GLB_R2			.844	
Q35_GLB_R3			.841	
Q37_ASB_R2			.839	
Q36_L2B_R2			.834	
Q36_L2B_R3			.812	
Q37_ASB_R1			.730	
Q35_GLB_R1			.678	
Q36_L2B_R1			.657	
Q31_N3				.804
Q25_N2				.787
Q23_Loneliness				.771
Q18_N1				.742

*Note.* Extraction method: Principal factor analysis. Rotation method: Varimax rotation with Kaiser standardization.

### Figure C11

*Scree Plot*

