

**THE INFLUENCE OF GROWTH MINDSET AND
OPTIMISM ON LEARNING ENGAGEMENT
AMONG COLLEGE STUDENTS IN CHINA:
THE MEDIATING ROLE OF
PERCEIVED TEACHER SUPPORT**

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by

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TABLE OF CONTENTS

ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	ix
LIST OF FIGURES	xi
LIST OF APPENDICES	xii
ABSTRAK	xiii
ABSTRACT	xv
CHAPTER 1 INTRODUCTION	1
1.1 Introduction	1
1.2 Background of the study	5
1.3 Problem Statement	12
1.4 Research Objectives	18
1.5 Research Questions	19
1.6 Significance of The Study	20
1.6.1 Teacher	20
1.6.2 College	21
1.6.3 Ministry of Education	22
1.7 Definition of Terms	23
1.7.1 Learning Engagement	23
1.7.2 Growth Mindset	24
1.7.3 Optimism	25
1.7.4 Perceived Teacher Support	25
1.8 Summary	26
CHAPTER 2 LITERATURE REVIEW	28
2.1 Introduction	28

2.2	Related Theories of The Study	28
2.2.1	Self-determination Theory (SDT)	29
2.2.2	Implicit Theory of Intelligence (ITI)	34
2.2.3	Reciprocal Determinism (RD)	41
2.2.4	Ecological Systems Theory (EST)	50
2.2.5	The Development of Theoretical Framework	58
2.3	Learning Engagement	68
2.3.1	The concept and dimensions of Learning Engagement	69
2.3.2	Factors of Influencing on Learning Engagement	73
2.3.3	Learning Engagement among College Students	76
2.3.4	Measurements of learning engagement	79
2.4	Growth Mindset	84
2.4.1	The concept of growth mindset	84
2.4.2	Growth Mindset among College Students	87
2.4.3	Factors and Measurements of Growth Mindset	91
	2.4.3(a) Factors of Growth Mindset	91
	2.4.3(b) Measurements of Growth Mindset	92
2.5	Optimism	94
2.5.1	Optimism Concept	94
2.5.2	Optimism among College Students	97
2.5.3	Structure and Measurements of Optimism	99
2.6	Perceived Teacher Support	104
2.6.1	The concept of Perceived Teacher Support	104
2.6.2	Perceived Teacher Support among College Students	105
2.6.3	Structure and Measurements of Perceived Teacher Support	107
	2.6.3(a) Structure of Perceived Teacher Support	107
	2.6.3(b) Measurements of Perceived Teacher Support	108

2.7	Hypotheses Development	109
2.7.1	The Relationship between Growth Mindset and Learning Engagement	110
2.7.2	The Relationship between Optimism and Learning Engagement	112
2.7.3	The relationship between Perceived Teacher Support and Learning Engagement	113
2.7.4	The relationship between Growth Mindset and Perceived Teacher Support	114
2.7.5	The relationship between Optimism and Perceived Teacher Support	116
2.7.6	The relationship between Growth Mindset, perceived Teacher Support and Learning Engagement	117
2.7.7	The relationship between Optimism, Perceived Teacher Support and Learning Engagement	119
2.8	Research Gap	122
2.9	Conceptual Framework	126
2.10	Summary	129
CHAPTER 3 METHODOLOGY		130
3.1	Introduction	130
3.2	Research Design	130
3.3	Research Population and Sampling Technique	134
3.3.1	Research Population	134
3.3.2	Research Sampling Size	139
3.3.3	Sampling technique	143
3.4	Research Instruments	148
3.4.1	Learning Engagement	149
3.4.2	Growth Mindset	151
3.4.3	Optimism	153
3.4.4	Perceived Teacher Support	155

3.5	Pilot study	157
3.5.1	The pilot study of Learning Engagement	158
3.5.2	The pilot study of Growth Mindset	161
3.5.3	The pilot study of Optimism	162
3.5.4	The pilot study of Perceived Teacher Support	163
3.6	Data Collection Procedure	164
3.7	Data Analysis Procedure	165
3.7.1	Descriptive Statistics	166
3.7.2	Structural Equation Modeling (SEM)	166
3.7.3	Assessment of Measurement Model	168
3.7.3(a)	Indicator Reliability (item loading)	168
3.7.3(b)	Internal Consistency	169
3.7.3(c)	Convergent Validity	169
3.7.3(d)	Discriminate Validity	170
3.7.4	Assessment of Structure Model	171
3.7.4(a)	Lateral Collinearity (VIF)	172
3.7.4(b)	Path Coefficient	173
3.7.4(c)	Coefficient of Determination (R^2)	173
3.7.4(d)	Effect Size (f^2)	174
3.7.4(e)	Predictive Relevance (Q^2)	174
3.8	Ethical Considerations	175
3.9	Summary	176
CHAPTER 4 RESEARCH FINDINGS		179
4.1	Introduction	179
4.2	Demographic Characteristics	179
4.3	Preliminary Research Data Screening	181
4.3.1	Cleaning Missing Data	181

4.3.2	Outliers	184
4.3.3	Normality	187
4.4	Descriptive Analysis of the Study Constructs	189
4.5	Partial Least Square-Structural Equation Modeling (PLS-SEM) Analysis ..	192
4.5.1	Measurement Model Assessment	194
4.5.1(a)	Indicator Reliability (Item Loading)	195
4.5.1(b)	Internal Consistency	198
4.5.1(c)	Convergent Validity	198
4.5.1(d)	Discriminant Validity	199
4.5.2	Structural Model Assessment	202
4.5.2(a)	Variance Inflation Factor (VIF)	203
4.5.2(b)	Path Coefficients	203
4.5.2(c)	Coefficients of Determination(R^2)	204
4.5.2(d)	Effect Size (f^2)	205
4.5.2(e)	Predictive Relevance (Q^2)	206
4.6	Mediation Analysis	207
4.7	Summary of the Results	211
4.8	Summary	212
CHAPTER 5 DISCUSSION AND CONCLUSION		213
5.1	Introduction	213
5.2	Recapitulation of the Research	213
5.3	Discussion of Research Findings	217
5.3.1	The level of learning engagement among college students in Nanchang City, China	217
5.3.2	Growth mindset, optimism, and perceived teacher support influence learning engagement among college students in Nanchang City, China	222
5.3.3	Growth mindset, optimism influence perceived teacher support among college students in Nanchang City, China	232

5.3.4	Perceived teacher support mediate the relationship between growth mindset and learning engagement among college students in Nanchang City, China	239
5.3.5	Perceived teacher support mediate the relationship between optimism and learning engagement among college students in Nanchang City, China	243
5.4	Implications of the Study	248
5.4.1	Theoretical Implications	249
5.4.2	Practical Implications	252
5.5	Contribution for the New Knowledge	253
5.6	Limitations and Delimitations	254
5.6.1	Limitations	255
5.6.2	Delimitations	256
5.7	Suggestions for Future Studies	257
5.8	Conclusion	258
REFERENCES		261
APPENDICES		

LIST OF TABLES

	Page
Table 2.1	Related Theories of Growth Mindset 41
Table 2.2	Triadic Reciprocity of the Interaction 49
Table 2.3	Dweck's Scale of Growth Mindset 94
Table 2.4	The Structure of Optimism 101
Table 2.5	Summary of Hypotheses 123
Table 3.1	Research methodology of the current study 135
Table 3.2	The enrolment number of students of Jiangxi Province in 2022: 138
Table 3.3	Sampling Frame of This Study 138
Table 3.4	The Reliability of Measurement instruments 151
Table 3.5	Refined Measurement of Growth Mindset 154
Table 3.6	Refined Measurement of Optimism 157
Table 3.7	Cronbach Alpha of the Reliability 161
Table 3.8	KMO and Bartlett's Test of Learning Engagement 161
Table 3.9	Cronbach Alpha of the Growth Mindset 163
Table 3.10	KMO and Bartlett's Test of Growth Mindset 163
Table 3.11	Cronbach Alpha of the Optimism 164
Table 3.12	KMO and Bartlett's Test of Optimism 164
Table 3.13	Cronbach Alpha of Perceived Teacher Support 165
Table 3.14	KMO and Bartlett's Test of Perceived Teacher Support 165
Table 3.15	Rules of Thumb for measurement model analysis using Smart PLS 173
Table 3.16	Rules of Thumb for structural model analysis using Smart PLS 177
Table 3.17	Summary of the Methodology 180
Table 4.1	Demographic Analysis Distribution 184

Table 4.2	Missing Data Analysis Results	186
Table 4.3	Z-score Analysis Result	188
Table 4.4	Results of Normality Analysis	191
Table 4.5	Descriptive Analysis Results (mean and standard deviation)	194
Table 4.6	The Mean of Learning Engagement	194
Table 4.7	Reliability and Validity of the Measurement Model (after deleting)	200
Table 4.8	Fornell-Larcker criterion	204
Table 4.9	Cross Loadings	204
Table 4.10	Heterotrait Monotrait (HTMT)	206
Table 4.11	Inner VIF Values	207
Table 4.12	Results of Structural Path Analysis	208
Table 4.13	R-square Analysis Results	209
Table 4.14	Results of Effect Size (f^2)	210
Table 4.15	Coefficient of Determination R^2 and Q^2 predict	211
Table 4.16	Mediating Effects in the Structural Model	213
Table 4.17	Research Hypothesis Results	215

LIST OF FIGURES

	Page
Figure 2.1 The Self-determination Theory (SDT)	34
Figure 2.2 Implicit Theory of Intelligence (ITI)	37
Figure 2.3 Reciprocal Determinism (RD)	49
Figure 2.4 Bronfenbrenner’s Ecological Systems Theory	57
Figure 2.5 Theoretical Framework of The Study	67
Figure 2.6 Growth Mindset and Fix Mindset	86
Figure 2.7 Hypothetical Model	121
Figure 2.8 Conceptual Framework of The Study	128
Figure 3.1 G*Power analysis	142
Figure 3.2 Cluster Random Sampling of This Study	146
Figure 3.3 Summarizes the Data Collection Procedure.	164
Figure 3.4 Procedure of Evaluating Structured Model	171
Figure 4.1 Research Model	191
Figure 4.2 Research Model and Research Indicator	197
Figure 4.3 Reflective Measurement Model Assessments	194
Figure 4.4 Structural Mode	208

LIST OF APPENDICES

Appendix A	Cover letter and Survey Questionnaire
Appendix B	PLS Regression Model

**PENGARUH PERKEMBANGAN MINDA DAN OPTIMISME TERHADAP
PENGLIBATAN PEMBELAJARAN DALAM KALANGAN PELAJAR KOLEJ
DI CHINA: PERANAN PENGANTARA SOKONGAN GURU**

ABSTRAK

Tujuan kajian ini dijalankan adalah untuk meneroka pengaruh perkembangan minda, optimisme, sokongan guru terhadap penglibatan pembelajaran dalam kalangan pelajar kolej di China. Kajian ini juga berfokus tentang keberkesanan kesan pengantara iaitu sokongan guru dalam mempengaruhi perkembangan minda dan optimisme terhadap penglibatan pembelajaran pelajar kolej. Metodologi yang digunakan ialah kajian kuantitatif. Instrumen penyelidikan yang digunakan adalah dalam bentuk soal selidik. Item soalan diadaptasi daripada pelbagai sumber yang mana Teori Penentuan Diri (SDT), Teori Kecerdasan Tersirat (ITI), Determinisme Timbal Balik (DR), dan Teori Sistem Ekologi (EST) digunakan sebagai asas teori dalam kajian ini. Seramai 472 responden terlibat dalam kajian ini. Responden yang terlibat ialah pelajar kolej yang sedang belajar di bandar Nanchang di wilayah Jiangxi di China. Data yang diperoleh dari analisis deskriptif (peratusan, min dan sisihan piawai) dengan menggunakan Pakej Statistik untuk Sains Sosial (SPSS) versi 24.0 dan perisian Smart PLS-SEM (Partial Least Squares-Structural Equation Modeling) versi 3.2.9 untuk mengukur model pengukuran dan model struktur. Smart PLS-SEM juga digunakan untuk menilai kesan pengantara terhadap penglibatan. Hasil Kajian menunjukkan bahawa perkembangan minda, optimisme dan sokongan guru mempunyai hubungan yang signifikan dengan penglibatan pembelajaran. Pada masa yang sama, perkembangan minda dan optimisme juga mempunyai hubungan yang

signifikan dengan sokongan guru. Di samping itu, penemuan kajian ini juga menunjukkan bahawa sokongan guru yang bertindak sebagai pengantara antara perkembangan minda, optimisme dan penglibatan pembelajaran dalam kalangan pelajar kolej di China.

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ABSTRACT

The purpose of this study is to explore the influence of growth mindset, optimism, and perceived teacher support towards learning engagement among college students in China. This present study also looks at the effectiveness of the mediator that is the perceived teacher support in influencing the growth mindset and optimism toward learning engagement of college students. The methodology used is a quantitative study. The research instrument used is in the form of a questionnaire. This study was theoretically grounded in Self-Determination Theory (SDT), Implicit Theories of Intelligence (ITI), Reciprocal Determinism(RD), and Ecological Systems Theory (EST).The study sample comprised 472 college students from higher education institutions in Nanchang, Jiangxi Province, China. Descriptive statistics (including percentages, means, and standard deviations) were analyzed using SPSS version 24.0, while measurement and structural models were evaluated using SmartPLS version 3.2.9 through Partial Least Squares Structural Equation Modeling (PLS-SEM). The mediating effect of perceived teacher support on learning engagement was also tested using PLS-SEM. The results indicated that growth mindset, optimism, and perceived teacher support were significantly associated with learning engagement. Moreover, growth mindset and optimism were found to be significantly related to perceived teacher support. Notably, perceived teacher support functioned as a mediating variable between growth mindset, optimism, and learning

engagement among Chinese college students.

CHAPTER 1

INTRODUCTION

1.1 Introduction

In 2018, the Ministry of Education issued the "Opinions on Accelerating the Construction of High-Quality Undergraduate Education and Comprehensively Enhancing the Capacity for Talent Cultivation", clearly stating that building an education power is a fundamental project for the great rejuvenation of the Chinese nation (Ministry of Education.,2018). Higher education is an important symbol of a country's development level and potential. China is at a critical juncture of building a modern socialist power and realizing the great rejuvenation of the Chinese nation. The need for higher education scientific knowledge, and outstanding talents is more urgent than ever before. Undergraduates constitute the largest group of high-quality specialized talents. The undergraduate stage is a crucial period for the formation of students' worldviews, outlooks on life, and values. Undergraduate education is the most important foundation for improving the quality of higher education. Therefore, to enhance the quality of higher education in China, build world-class universities, and establish a higher education power, it is necessary to accelerate the construction of high-quality undergraduate education, cultivate a large number of high-quality specialized talents with ideals, abilities, and a sense of responsibility, and provide strong talent support and intellectual support for building a moderately prosperous society in all respects, basically realizing socialist modernization, and building a modern socialist power.

Furthermore, the high-quality performance of education is the effective engagement of learners. A large number of studies have shown that learning engagement is an important indicator for observing the learning process, predicting

academic achievement, academic satisfaction, and learning attitudes(Barkley & Major, 2020; Fredricks et al., 2004). Learning engagement refers to students' sustained, healthy psychological state when acquiring cultural knowledge and conducting scientific research (Fang Laitan et al., 2008). With the development of positive psychology, research on learning engagement has gradually increased over the past decade. This state helps maintain high enthusiasm during learning, assists students in optimistically and calmly facing difficulties, and keeps them continuously invested in their studies. Consequently, in the landscape of higher education, student learning engagement is an essential aspect of teaching activities and is considered to be the basic structure of providing quality education and a factor associated with academic success (Fisher et al., 2021).

Although the scale of higher education continues to expand, the quality of university students' learning has declined (Ministry of Education.,2019). From the current perspective, the performance of student's engagement in learning has not been satisfactory, and there have been concerns about low course completion rates, poor student autonomy, and shallow negative engagement (Jin Xinquan et al., 2021; Wang Shuyuan, 2022). The researcher Yang Lu (2020) proposed that adolescents' most critical psychological problems are learning problems, accounting for one-third of the total counseling (Yang Lu, 2020). This suggests that learning-related issues are one of the most critical problems plaguing adolescents, and parents and teachers should pay more attention to them. Therefore, it is imperative to explore the factors that influence learning engagement. This not only helps to increase the level of student engagement in learning but also lays the foundation for better results in higher education.

On the one hand, optimism is a set of beliefs that leads people to approach the world in a positive way (Scheier & Carver, 1987). Studies have shown that optimism is not only beneficial to students' mental health (House et al., 1988; Kawachi, 2001; Lorant et al., 2003) but also promotes students' learning engagement and academic achievement (Carr, 2013; Datu et al., 2018; Nambudiri et al., 2020). After reviewing domestic Chinese literature, it was found that domestic research has verified its cross-cultural applicability after the concept of "academic optimism" was introduced. It is pointed out that its introduction in China was relatively late, and the potential applications may have been insufficiently utilized. There is a lack of innovation in the Chinese local optimistic research, and it pays insufficient attention to culturally specific factors such as college atmosphere and family interaction (Liu Youling, 2010; Sun Wenmei et al., 2010). Therefore, the research of a local optimistic study in China is urgently needed.

On the other hand, mindsets, as proposed by Dweck (2006), are implicit beliefs about the malleability of intelligence (Dweck, 2006). Dweck's implicit theory also indicates that a growth mindset, as a core component of an individual's belief system (Dweck & Leggett, 1988), can influence an individual's cognition (Diao Chunting et al., 2020), emotions (Jiang Shuyang et al., 2019), and behavior (Bostwick et al., 2020; Jones et al., 2021; G. Zeng et al., 2019). However, from the review of Chinese local literature, it is found that China's research on growth mindset lacks the research perspective from the Chinese local education system, lacks intervention applications, and ignores the teaching ideas in Chinese traditional culture. In addition, previous studies have shown that research on growth mindset is mostly concentrated

in Europe and the United States, with less research in China and insufficient cross-cultural comparison (Laine & Tirri, 2023; Lan, 2011). Besides, growth mindset and optimism both belong to students' internal factors.

According to Bandura and Evans (2006), there are deep reasons for individual students' different behaviors in the multiple interactions between the person and their environment (Bandura & Evans, 2006; Devi et al., 2017). Therefore, this study not only investigates internal factors but also comprehensively examines external factors affecting learning engagement. At the same time, perceived teacher support is a widely recognized factor influencing learning engagement. It is an essential environmental factor within the social cognitive theory, focusing on the student's perspective and studying the teacher support behavior perceived by students (Ouyang Dan, 2005), which is used as a mediator in this current study.

In summary, research on the current state and influencing factors of university students' learning engagement is relatively well-developed and mature abroad. In contrast, although both the quantity and quality of similar research in China are on an upward trend, most studies focus on a micro perspective. There is less research analyzing learning engagement from a macro perspective, such as student internal personal factors, family environment, and the broader educational environment provided by teachers and universities. Therefore, this thesis aims to comprehensively study the current state of university students' learning engagement by examining both internal factors (e.g., growth mindset and optimism) and external environmental factors (e.g., perceived teacher support) to explore their impact on university learning engagement which employ quantitative research methods and utilize Smart PLS software to investigate the relationship between them. To some

extent, this research will help enrich the research on learning engagement in psychology, which can improve the quality of higher education among college students in China.

This chapter focus on exploring the influence of growth mindset and optimism on learning engagement among college students, and the perceiver teacher support employed as a mediator. It aims to provide a comprehensive understanding of the factors contributing to learning engagement in Jiangxi, Nanchang City among college population. This chapter includes a background of the study, problem statement, research objectives, research questions, significance of the study, and definition of terms. Through this exploration, we aim to offer insights that knowledge and support mechanisms to improve the level of learning engagement among China college students.

1.2 Background of the study

According to the data released by the Ministry of Education of the People's Republic of China in 2022, the total number of students in higher education reached 46.55 million, the gross enrollment rate of higher education reached 59.6 percent, and China has established the world's most extensive higher education system (Ministry of education, 2023). However, the general secretary Xi Jinping pointed out that rapid expansion does not mean the quality and effectiveness of development. He also pointed out that practicing connotative development with quality improvement as its core is the only way to develop China's higher education.

With the popularization of higher education in China, promoting the high-quality development of higher education has become a meaningful way to encourage the development of an educational power. Although the scale of higher education has

been expanding, the quality of learning for university students has declined (Ministry of Education.,2019). Additionally, undergraduate education is the foundation for improving the quality of higher education, which is a key stage in the formation of students' worldviews for the future of college students. College students face the dual pressure of academic pressure and imminent employment(Liu Zaihua, 2015) . Hence, it can be seen that paying attention to improving the level of higher education is very important for college students and social development.

To our knowledge, the guarantee of high-quality development of education needs to be based on indicators, and learning engagement is an effective and actionable evaluation indicator (Bernardo, 2021). Learning engagement refers to the positive, fulfilling, learning-related state of mind that a learner puts into the learning process (Jung & Lee, 2018; Schaufeli, 2013). As an evaluation index of students' learning experience and a predictor of academic achievement and higher education quality, learning engagement is attracting increasing attention from scholars in China and overseas (Kuh, 2001). A Lancet commission concluded that improving adolescent education outcomes “presents the single best investment for health and wellbeing” (Patton et al., 2016). Furthermore, previous studies have confirmed that low learning engagement can cause a lot of students problems, such as poor academic performance among college students, an increase in the tendency to dislike learning, and a significant rise in the dropout rate (Wu et al., 2023; Xiang zuqiang et al., 2022).

Therefore, insufficient student learning engagement not only directly affects students' academic performance (Abubakar et al., 2017; Wu et al., 2020) but also leads to various learning problems (Guo et al., 2016), which indirectly affects students' mental health (Appel et al., 2023; Gao et al., 2020; Kotera & Ting, 2021).

Therefore, the study of learning engagement and its influencing factors is of great significance to improving the quality of education.

To stimulate the quality of China's higher education, in 2018, the Ministry of Education issued the Opinions on Accelerating the Construction of High-Level Undergraduate Education and Comprehensively Improving Talent Cultivation Capability, which clearly states that building a strong educational country is a basic project for the great rejuvenation of the Chinese nation (Ministry of Education., 2018). As China is building a socialist, modernized, powerful country and realizing the great rejuvenation of the Chinese nation, the need for higher education and the need for scientific knowledge and excellent talent is more urgent than ever. However, the central position of talent cultivation and the basic position of undergraduate teaching has not been sufficiently consolidated, the investment of energy and resources in some universities is still not in a central place, and the concept of education is still relatively lagging (Shi Jinghuan, 2016).

A 2021 large-scale study called Supertest, jointly initiated by Peking University, Tsinghua University, and Stanford University, tested the ability of engineering undergraduates in four countries: Russia, China, India, and the United States in physics, mathematics, and critical thinking (Loyalka et al., 2021). The study, which involved more than 30,000 university students, was measured three different times, and the results showed that the critical thinking skills and academic skills of Chinese students declined after four years of university education, both at key and regular universities, but by varying degrees. It is also shown that many college students squander their time, relax their studies, and burn out their studies after being admitted to university after experiencing the heavy burden of middle school (Wu Daguang, 2018). Besides, nearly 30% of college students drop out within their first

year, and less than 60% graduate after 6 years, according to the U.S. Department of Education (Snyder & Dillow, 2013). Moreover, about 20% of students in the United States will not finish high school on time (McFarland et al., 2016). Consequently, from this point of view, the level of students' learning engagement urgently needs to be improved. Therefore, it is imperative to explore the factors that influence learning engagement, which is not only conducive to enhancing students' level of learning engagement but also lays the foundation for achieving better academic results and enhancing the quality of education.

Understanding the factors influencing college students' engagement is essential to address this challenge and promote an environment conducive to optimal learning which would improve the quantity of learning engagement among Chinese college students. Numerous elements influence students' level of learning engagement, mainly spanning from internal characteristics factors to external environmental conditions. This investigation reveals that despite the abundance of studies on these factors, there's a notable scarcity of literature integrating both the internal and external aspects affecting students. Besides, Previous research has identified two key internal psychological factors (e.g., growth mindset and optimism) with promising implications for fostering learning engagement (Bergdahl et al., 2020; Li et al., 2023; Nurtila et al., 2015).

The one concept that may facilitate responses to challenges in educational settings is the growth mindset. Mindset refers to an individual's core assumptions about the malleability of personal qualities (Dweck et al., 1995). According to the implicit theory of intelligence, a person's mindset can range from a fixed mindset (entity view) to a growth mindset (incremental view) (Dweck et al., 1995). Students who hold fixed mindsets (entity theorists) believe that intellectual capabilities are

inborn and cannot be altered, while those with growth mindsets (incremental theorists) are convinced that effort can enhance intellectual abilities (Dweck, 2006; Yeager & Dweck, 2012). When faced with academic challenges, students with fixed mindsets tend to believe that it is useless to put effort into the learning process once they feel they have reached a limit to their intellectual abilities; they can easily feel helpless and get stuck in the situation (Blackwell et al., 2007; G. Zeng et al., 2016). So, they are reluctant to exert too much effort or face challenges and are prone to giving up when confronted with setbacks. In contrast, individuals with a growth mindset believe that abilities can be enhanced through learning. Consequently, they interpret difficulty as an opportunity to develop their skills, often opting to master goals and willingly accepting challenges. Besides, they are eager to exert effort and persist in the face of difficulties, which may facilitate their academic performance (Dweck & Yeager, 2019; Romero et al., 2014).

A lot of evidence has indicated that children's mindsets can influence their academic achievements in educational settings (Blackwell et al., 2007; Claro et al., 2016; Karlen et al., 2021) while many studies have indicated that the growth mindset is significantly and positively linked with student learning engagement (Lam et al., 2023; Lin-Siegler et al., 2016; Schmidt et al., 2017). However, From the review of Chinese local literature, it is found that research on growth mindset is mostly concentrated in Europe and the United States, with less research in China and insufficient cross-cultural comparison (Laine & Tirri, 2023; Lan, 2011). Moreover, research has found that teacher autonomy support plays a critical role in the development of a growth mindset, but there are few studies on the impact of student perception of teacher support on growth mindset from the perspective of college students (Yao Hao et al., 2024). Therefore, this study not only explores the influence

of localized teacher support on growth mindset in China, but also fills the research gap in the combination of growth mindset with higher education and teacher research in China, and is of great significance.

Another key internal psychological factor that may facilitate responses to challenges in educational settings is optimism. Optimism is a set of beliefs that leads people to approach the world positively (Scheier & Carver, 1987). During the 1990s, Seligman and colleagues reframed optimism as an explanatory style that could be learned, termed ‘learned optimism’ and that was the opposite of learned helplessness (Seligman, 1998). According to Seligman (1998), people with a pessimistic explanatory style tend to consider negative events to be pervasive (applying to all areas of their life), permanent (they will be this way forever), and personal (their own fault) (Seligman, 1998). They consider positive events to be exceptional or unusual, short-lived, and attributed to luck and not to their effort or ability.

Furthermore, people with an optimistic explanatory style consider negative events to be exceptional or unusual, short-lived, and attributed more to bad luck than their effort or ability. In contrast, they consider positive events to be pervasive (affecting all areas of their life), permanent, and personal (not just luck). Learning to interrupt pessimistic thought patterns with optimistic thought patterns significantly reduces feelings of helplessness and energizes the desire to learn and grow; learning optimism also can approach academic problems in a hopeful, positive, and openminded way (Seligman, 1998). However, after reviewing Chinese local literature, it was found that the introduction of optimism in China was relatively late, and the potential applications may have been insufficiently utilized. There is a lack

of innovation in the Chinese local optimistic research, and it pays insufficient attention to cultural-specific factors such as college atmosphere and family interaction (Liu Youling, 2010; Sun Wenmei et al., 2010). Therefore, the research of a local optimistic study in China is urgently needed. So, cultivating the psychological quality of optimism among college students has a great significance in enhancing the level of college students' learning engagement and improving the quality of higher education in China.

According to Bandura (1989), there are deep reasons for the different behaviors of individual college students that lie in the multiple interactions between the person and their environment (Bandura & Evans, 2006; Devi et al., 2017). In line with Reciprocal Determinism (Bandura, 1989), improving the quality of higher education is a complicated and systematic project. From the viewpoint of the main body alone, it involves students, teachers, educational institutions, the government, and society, and each part of it has its interests. As China's higher education has entered the stage of popularization, it is no longer possible to effectively promote the improvement of the quality of personnel training by merely relying on the support provided by the national policy. Therefore, it is more important and effective to comprehensively focus on the learner's internal factors (e.g., growth mindset, optimism) and external factors (e.g., the support provided by the teacher) together (Finn & Zimmer, 2012; Shi Qiuheng & Wang Fang, 2018).

For college students, teachers, as "guides," are important social subjects and key external environmental factors in learning activities (Battistich et al., 1995; Jang et al., 2010). Klem and Connell (2004) defined teacher support as a student's feeling of importance and feeling of being supported by the teacher, which also stated that teacher support is a very important external factor in student engagement

(Klem & Connell, 2004). Moreover, teacher support is not only directly related to academic efficacy and learning effectiveness but also has a certain correlation with learners' learning motivation and learning engagement (An et al., 2022; Patrick et al., 2007; Tao et al., 2022).

During the learning process, students show a higher level of engagement and a more positive experience when they feel supported by their teachers (Tas et al., 2019). If the teacher is warm and caring, students feel happier and more enthusiastic about the class (emotional engagement) (Skinner & Belmont, 1993), which leads to a significant increase in the academic engagement of the students (Marks, 2000; Skinner & Belmont, 1993; Voelkl, 1995). Besides, both optimism and growth mindset need to be supported by teachers, which further enhances students' engagement in learning. Therefore, perceived teacher support is used as a mediator to investigate the relationship between growth mindset, optimism, and learning engagement in this present study.

To sum up, this paper focuses on the specific context of college students who were facing unique challenges related to personal growth and academic independence, studying the effect of Growth Mindset and optimism on learning engagement among college students and using the role of perceived teacher support as a mediator, which few research has integrated both students internal factors (e.g., growth mindset and optimism) and external factors (e.g., perceived teacher support) and can provide valuable insights into promoting of the level of college students learning engagement and the improvement of the quality of learning in this critical stage of educational development in China.

1.3 Problem Statement

“ Opinions on Deepening the Reform of Undergraduate Education and Comprehensively Improving the Quality of Talent Cultivation, ” issued by the Ministry of Education in October 2019, improving the quality of undergraduate education is an urgent requirement for developing contemporary higher education (Ministry of Education., 2019). Therefore, China's higher education is in a critical quality and reform development period. The institutions of higher education must take the initiative to adapt to the new needs of national strategic development and the latest trends in the development of higher education globally.

The manifestation of high quality in higher education is the effective engagement of learners. Many studies have shown that it can directly determine students' academic performance to a certain extent (Handelsman et al., 2005; Jung & Lee, 2018; F. H. Wang, 2017). When students are more engaged in their studies, they gain more, and students' gains in their studies reflect the quality of education and teaching in colleges. Students' learning engagement is recognized as one of the main components of effective instruction (Barkley & Major, 2020); there is now a substantial amount of empirical research indicating that the state of students' learning engagement can effectively reflect their initiative in learning, predict their academic achievements, and even indicate tendencies toward academic burnout or dropout intentions (Bernardo et al., 2022; Wu et al., 2020). It is considered an essential factor in improving the quality of education (Li xin & Li yanran, 2021).

As higher education becomes more widespread in China, promoting the high-quality development of higher education has become a meaningful way to advance the development of a strong education nation. However, although the scale of higher education continues to expand, the quality of university students' learning has declined (Ministry of Education., 2019). Researchers have also pointed out that the

performance of Chinese college students' learning engagement is not satisfactory at present, with low course completion rates and poor student autonomy, significant declines in learning engagement, and other phenomena, that have caused great concern in China (Jin Xinquan et al., 2021; Qiao Weifeng et al., 2021). Furthermore, previous studies have confirmed that low learning engagement can cause a lot of students problems, such as poor academic performance among college students, an increase in the tendency to dislike learning, and a significant rise in the dropout rate (Wu et al., 2023; Xiang zuqiang et al., 2022).

For example, Liu Zaihua (2015) surveyed over a thousand students and found that as many as 35.29% of them had learning engagement levels below the standards set by the government, therefore, the results of learning engagement are still concerning. In addition, it also shows that although most students complete their homework on time and some even perform well, they are not truly engaged in it but merely doing it to appease teachers and parents (Liu Zaihua, 2015).

Besides, researcher Yang Lu (2020) proposed that learning-related problems are one of the main problems that bother adolescents that account for one-third of the total counseling, and parents and teachers should pay attention to them, which can cause critical college student's psychological problems, such as low self-esteem, depression, aversion to learning, truancy, and refusal to learn due to poor academic performance. The above phenomenon is mostly caused by the low learning engagement of students (Yang Lu, 2020). Consequently, from that point of view, the level of students' learning engagement urgently needs to be improved. Improving the learning engagement level of Chinese college students is of great significance to improving the quality of China's higher education and promoting the healthy physical and mental development of college students. Therefore, it is imperative to

explore the factors that influence learning engagement. This not only helps to increase the level of student engagement in learning but also lays the foundation for better results.

Finding the factors that influence learning engagement is crucial to improving the level of college students' learning engagement. Researchers proposed that it had various factors, such as disinterest, lack of motivation, and external pressures, can contribute to this challenge, leading to suboptimal learning outcomes and reduced educational satisfaction (Jin Lu, 2014; Wang Yancui, 2013; Yi Fang et al., 2017). Therefore, the literature review can summarize the factors that influence learning engagement mainly the students' internal factors and the external environment factors.

In the early part of the last century, research on learning engagement had already begun abroad, and most of the research focused on testing and defining learning engagement, as well as studying the relationship between learning engagement and academic performance (Chen Jiwen et al., 2015; Li Yongzhan, 2018; Yan Liangshi et al., 2018), but few of them pay attention to the impact of students' internal cognitive domains and their inner personality traits, especially seldom studied both in the context of the students internal factors and external environment factors in an integrated way. Therefore, this dissertation intends to study the current situation of college students learning engagement, comprehensively starting from the aspect of students' internal factors and external environmental factors aspects together. In addition, research has pointed out that the internal psychological factors of growth mindset and optimism have a significant influence on fostering learning engagement (Bergdahl et al., 2020; Li et al., 2023; Nurttala et al., 2015).

Growth mindset is characterized by the belief that intelligence and abilities can be cultivated through effort and learning, and Growth mindset interventions can

have a sustainable effect on children's academic development and social adjustment and have a more significant impact on academically challenged students (Zhang Kuo et al., 2021). Previous studies pointed out that Learning engagement and growth mindset positively affect learners' learning performance and completion of learning tasks (Bergdahl et al., 2020; Pursel et al., 2016).

However, From the review of Chinese local literature, it is found that China's research on growth mindset lacks the research perspective from the Chinese local education system, lacks intervention applications, and ignores the teaching ideas in Chinese traditional culture. In addition, previous studies have shown that research on growth mindset is mostly concentrated in Europe and the United States, with less research in China and insufficient cross-cultural comparison (Laine & Tirri, 2023; Lan, 2011). For example, according to the research of Liang Qiao (2024), the overall level of growth mindset among Chinese adolescents is above average, but there is little research on its adaptability in China (Liang Qiao, 2024). Moreover, research has found that teacher autonomy support plays a critical role in the development of a growth mindset, but there are few studies on the impact of student perception of teacher support on growth mindset from the perspective of college students (Yao Hao et al., 2024). Therefore, this study, based on the actual situation of Chinese college students, examines the combined influence of internal factors - growth mindset - and external influencing factors - perceived teacher support - on learning engagement. It not only explores the influence of localized teacher support on growth mindset in China, but also fills the research gap in the combination of growth mindset with higher education and teacher research in China, and is of great significance.

Optimism, which belongs to an individual's important positive psychological

trait in positive psychology, refers to a positive expectation about the outcomes of future events and is a stable personality trait (Scheier & Carver, 1992). Based on the literature, optimism plays a significant role in many aspects of our physical health, mental health, academics, lifelong achievements, and emotional life (Leif & Anne, 2000; Nurttila et al., 2015; Sabbaghi et al., 2020). However, After reviewing Chinese local literature, it was found that mental health education in colleges and universities still mainly adopts the traditional "problem correction" model, lacking systematic cultivation of positive psychological qualities (Li, 2020; Ting et al., 2023), and optimism is one of the core concepts in positive psychology. Furthermore, after the concept of "academic optimism" was introduced, domestic research has verified its cross-cultural applicability. However, it is pointed out that its introduction in China was relatively late, and the potential applications may have been insufficiently utilized. There is a lack of innovation in the Chinese local optimistic research, and it pays insufficient attention to cultural-specific factors such as college atmosphere and family interaction(Liu Youling, 2010; Sun Wenmei et al., 2010). Therefore, the research of a local optimistic study in China is urgently needed. Besides, growth mindset and optimism both belong to students' internal factors.

According to Ecosystem Theory (Bronfenbrenner, 2000), it should be regarded as a dynamic process variable that is influenced by both internal factors and external environmental factors. Hence, in the actual learning process, we cannot simply think of learning engagement as an outcome variable or an influencing variable. In this way, we can better understand and improve the learning engagement of college students. At the same time, perceived teacher support is a widely recognized factor influencing learning engagement and is an essential environmental factor in social cognitive theory. It refers to studying the teacher support behaviors

perceived by students, with the student as the subject and from the student's perspective (Ouyang Dan, 2005). It is mainly divided into three types: emotional, academic, and capability support. Scholars have proven that when students perceive care and affection from their teachers, who provide guidance and help for their educational and social issues, students will exhibit positive learning and social behaviors (An et al., 2022; Klem & Connell, 2004; Tao et al., 2022a). Consequently, their level of learning engagement will increase, leading to good academic performance. However, most existing research has only explored the direct effect of teacher support on learning engagement but neglected the research on the mechanism of influence.

Furthermore, undergraduate education is the foundation of higher education, and the college phase is a critical period for the development of students. In addition, college students face double the pressure of academic performance and finding a good job after graduation. The quality of academic performance in Chinese universities directly determines the choice of future majors, jobs, and even a person's career, which urgently requires them to make a higher level of learning investment (Liu Zaihua, 2015). Based on the above discussion, a critical research gap persists in comprehensively investigating the joint impact of growth mindset, optimism, and perceived teacher support on college students' learning engagement. Given this, this study also adopts a quantitative research method by conducting a questionnaire survey on college students and analyzing the collected data through structural equation modeling to explore the mechanism of the influence of college students' growth mindset and optimism on learners' engagement through the mediating role of perceived teacher support.

1.4 Research Objectives

The preceding discussions highlight the significance of examining student engagement in learning and its influence factors—specifically growth mindset, optimism, and perceived teacher support as mediators of this engagement—in the context of college learning. Therefore, this study mainly utilizes Ecological Systems Theory (EST) and Reciprocal Determinism (RD), Self-determination Theory (SDT), and Implicit Theory of Intelligence (ITI) to demonstrate how both internal personal factors, like growth mindset and optimism, and external environmental factors, such as perceived teacher support, can influence an individual's behavior and the interactions between these variables. Therefore, the specific objectives of this research were as follows:

- i) To explore the level of learning engagement among college students in China.
- ii) To explore the direct influence of growth mindset and optimism and perceived teacher support on learning engagement among college students in China.
- iii) To explore the direct influence of growth mindset and optimism on perceived teacher support among college students in China.
- iv) To explore the mediating role of perceived teacher support on growth mindset and learning engagement among college students in China.
- v) To explore the mediating role of perceived teacher support on optimism and learning engagement among college students in China.

1.5 Research Questions

In attempting to fill in the gaps identified in previous studies; this study

attempts to answer the following research questions:

- i) What is the level of learning engagement among college students in China?
- ii) Do growth mindset, optimism, and perceived teacher support influence learning engagement among college students in China?
- iii) Do growth mindset and optimism influence perceived teacher support among college students in China?
- iv) Does perceived teacher support mediate the relationship between growth mindset and learning engagement among college students in China?
- v) Does perceived teacher support mediate the relationship between optimism and learning engagement among college students in China?

1.6 Significance of The Study

The findings of this study are hoped to provide beneficial new knowledge to all parties, especially institutions directly involved in the field of education, to improve the quality of college students and colleges. Specifically, the contributions are:

1.6.1 Teacher

This study highlights the internal personal factors that drive student engagement in higher education settings in China, specifically focusing on growth mindset and optimism. Identifying these key internal personal factors helps the college understand what most significantly influences student engagement. More precisely, the insights from this study will assist university teachers in identifying the strategies required to enhance students' cognition, knowledge, skills, and interests, which are likely to stimulate their learning engagement. Teachers and students are

the foundation of college education. Teachers are the transmitters of students' learning knowledge and the key factors of students' learning in college. Many empirical studies have proved that students' academic achievement is closely related to teacher support. Therefore, this study hopes to provide teachers with information about the factors that affect college students' learning engagement, which is conducive to effectively enhancing their teaching quality.

In addition, this study also hopes to provide college teachers with the knowledge to change the learning cognition of college teachers, especially through the creative improvement of college students' mindset mode and optimism level, innovation, improved teacher support and encouragement for students, to improve the teaching quality of teachers and to increase student engagement and academic achievement. The study also provides teachers with insights into the importance of teacher support, helping teachers recognize the importance of their teacher support in all aspects of student development so that they pay more attention to students' feelings and give them more support, which makes a big difference for college students learning engagement and academic achievement.

1.6.2 College

Teachers are the implementers of college education. This study highlights the internal personal factors that drive student engagement in higher education settings in China, specifically focusing on growth mindset and optimism. Identifying these key internal personal factors helps the college understand what most significantly influences student engagement. More precisely, the insights from this study will assist university teachers in identifying the strategies required to enhance students' cognition, knowledge, skills, and interests, which are likely to stimulate their

learning engagement. Therefore, this study can provide research learning knowledge for schools to identify the factors affecting college students' learning engagement, especially in the context of higher education universities, to help schools comprehensively improve and enhance the level of college students' learning engagement and the quality of college education. The results of this study also create opportunities to meet the developmental needs of university teachers, especially to enhance their growth-oriented mindset and optimistic knowledge in self-cognition. Therefore, universities can organize internal teacher training courses, workshops, and motivational lectures on optimism and growth mindset to enrich teachers' knowledge and increase their motivation to support students, thereby establishing positive teaching practices at the college level. This is conducive to raising college students' learning cognition and growth mindset, reducing the incidence of bad learning problems and their inferiority, negativity, anxiety, and other psychological problems. At the same time, it is also beneficial to ease the pressure of routine education and teaching management in colleges, improve the quality of college education and teaching, and win a good social reputation for college.

1.6.3 Ministry of Education

Exploring the mediating effect of perceived teacher support between the other two core variables not only provides scientific and reliable theoretical support for the interaction mechanism among these three variables but also enriches the relevant research in this field. In addition, this study can provide certain guidance for the education reform and practice of the state and the Ministry of Education and also lay a theoretical foundation for improving students' perception of teacher support and their level of learning engagement, indicating the direction for current and later

educational practice, and provides new insights for further educational reform and innovation by the Ministry of Education.

Lastly, this study would help college students understand the importance of the growth mindset and optimism in order to improve their learning and academic achievement. These will help students understand the knowledge of growth mindset and optimism and realize that intelligence can be changed and developed. When they face challenges in learning and life with a more optimistic attitude, they continuously help themselves make greater progress. To some extent, this research finding is also very helpful for government policy-makers. Once policymakers understand the role of growth mindset and optimism, they will develop evaluation models and policies prioritizing student development and providing more reward policies for teachers to support students. A virtuous cycle conducive to student development will be formed in such a policy environment. Therefore, this is of practical significance to teachers, colleges, the Ministry of Education, policymakers, and students.

1.7 Definition of Terms

The key terms and definitions are listed here to help better understand this study's specific meaning.

1.7.1 Learning Engagement

Schaufeli (2002) pointed out three characteristics of learning engagement: vigor, dedication, and absorption (Schaufeli et al., 2002). Later, Fredricks et al. (2004) described and defined engagement in three ways: behavioral engagement, Emotional engagement, and cognitive engagement (Fredricks et al., 2004). From the literature review, most of the scholars choose the comprehensive perspective as the starting

point for research on learning engagement, which utilizes behavioral, cognitive, and emotional aspects when describing learning engagement, and such a way of description is more realistic and plentiful than the results obtained from a single-component description.

Consequently, in this study, learning engagement, as defined by Sun Weiwen (2009), is described and defined in three dimensions: emotional, cognitive, and behavioral (Sun weiwen, 2009); after these conditions are met, it means that students are committed to learning in all aspects.

The dependent variable of learning engagement will be measured using Fang Laitan's (2008) Learning Engagement Scale (LES) in this current study. Learning Engagement Scale (LES) was adapted by Fang Laitan (2008) (Fang Laitan et al., 2008), which was originally devised by Schaufeli et al. (2001) and answered on a 7-point Likert scale and had 17 questions. The internal consistency reliability of this scale was between 0.82-0.95, and the correlation coefficient was significant, which was between 0.76-0.77.

1.7.2 Growth Mindset

Mindset: Mindset refers to an individual's core assumptions about the malleability of personal qualities (Dweck et al., 1995). According to the implicit theory of intelligence, the mindset of an individual can vary along a continuum from an entity view (fixed mindset) to an incremental view (GM).

Growth Mindset: Dweck first proposed the concept. Students with growth mindsets (incremental theorists) believe effort can improve intellectual abilities (C. S. Dweck, 2013).

Fixed Mindset: Students with fixed mindsets (entity theorists) assert that