

**THE INFLUENCE OF PERCEIVED
SOCIAL SUPPORT, PERSONALITY TRAITS, AND
PSYCHOLOGICAL CAPITAL ON LEARNING
ENGAGEMENT AMONG SENIOR HIGH SCHOOL
STUDENTS IN CHINA**

LIU YANG

UNIVERSITI SAINS MALAYSIA

2025

**THE INFLUENCE OF PERCEIVED
SOCIAL SUPPORT, PERSONALITY TRAITS, AND
PSYCHOLOGICAL CAPITAL ON LEARNING
ENGAGEMENT AMONG SENIOR HIGH SCHOOL
STUDENTS IN CHINA**

by

LIU YANG

**Thesis submitted in fulfilment of the requirement
for the degree of
Doctor of Philosophy**

June 2025

ACKNOWLEDGEMENT

I would like to express my deepest gratitude and sincere appreciation to my supervisor Associate Professor Dr. Lim Hooi Lian for her invaluable guidance, continuous support and consistent encouragement and generous sparing of her busy time, she always provides me with some professional advice when I report my new progress to her. My gratitude also goes to all the departments, schools and staff of the USM university who helped me in the process of completing my research. I am deeply thankful to Associate Professor Dr. Ahmad Zamri Khairani and would also like to extend my thanks to Dr. Nurul Fazzuan Khalid. Appreciation is also given to all students who participated in this study. I also greatly appreciate to my beloved family in China, my dear parents who have always surrounded me with their love and support. I would also like to take the opportunity to thank my cherished friends. Without their inspiration, I hardly strive to achieve my goals and dreams.

TABLE OF CONTENTS

ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii
LIST OF TABLES.....	x
LIST OF FIGURES.....	xiv
LIST OF APPENDICES	xv
ABSTRAK.....	xvi
ABSTRACT	xviii
CHAPTER 1 INTRODUCTION	1
1.1 Introduction	1
1.2 Background of the Study	2
1.2.1 Learning Engagement in Global	3
1.2.2 Learning Engagement in China.....	4
1.2.3 Perceived Social Support	7
1.2.4 Personality Traits.....	9
1.2.5 Psychological Capital	10
1.3 Statement of the Problem	11
1.4 Purpose of the Study	18
1.5 Objectives of the Study	19
1.6 Research Questions	19
1.7 Research Hypothesis	20

1.8	Significance of the Study	24
1.9	Conceptual and Operational Definition.....	26
1.9.1	Learning Engagement	26
1.9.2	Personality Traits.....	27
1.9.3	Perceived Social Support	28
1.9.4	Psychological Capital	29
1.9.5	Senior High School Students.....	29
1.9.6	Gender	30
1.9.7	Class Leader	30
1.9.8	Non-Class Leader	30
1.10	Limitations	30
1.11	Summary	32
CHAPTER 2 LITERATURE REVIEW.....		33
2.1	Introduction	33
2.2	An Overview of Learning Engagement.....	33
2.2.1	Historical View	33
2.2.2	Chinese Educational Setting.....	38
2.2.3	Learning Engagement in Senior High School.....	42
2.3	Learning Engagement Assessment.....	44
2.3.1	Self-Reported Measures of Learning Engagement	45
2.3.2	Alternative Approaches to Assessing Engagement	47
2.3.3	Assessment of Chinese students' learning engagement	48
2.4	Perceived Social Support	51

2.4.1	The Concept of Perceived Social Support	51
2.4.2	Perceived Social Support and Learning Engagement	52
2.4.3	Hypotheses	59
2.5	Personality Traits	59
2.5.1	The Concept of Personality Traits	60
2.5.2	Personality Traits and Learning Engagement	61
2.5.3	Hypotheses	67
2.6	Psychological Capital	68
2.6.1	The Concept of Psychological Capital	68
2.6.2	Psychological Capital and Learning Engagement	69
2.6.3	Hypotheses	73
2.7	Gender Difference	74
2.7.1	Hypotheses	80
2.8	Class Leader and Non-Class Leader Difference	81
2.8.1	Hypotheses	87
2.9	The Related Theories	87
2.9.1	The Self-Determination Theory	88
2.9.2	The Trait Theory	91
2.9.3	The Ecological Systems Theory	94
2.9.4	The Conservation of Resources Theory	97
2.9.5	Theoretical Framework	100
2.10	Conceptual Framework	103
2.11	Summary	105

CHAPTER 3	METHODOLOGY	106
3.1	Introduction	106
3.2	Research Design	106
3.2.1	Cross-Sectional Field Surveys	109
3.2.2	Semi-Structure Interview	109
3.3	Population and Sampling	111
3.3.1	The Population of the Study.....	111
3.3.2	The Sampling of the Study.....	111
3.3.3	Determining the Sample Size.....	113
3.4	The Sampling Procedure	115
3.5	Research Variables	117
3.6	Research Instruments	119
3.6.1	The Child and Adolescent Social Support Scale.....	119
3.6.2	The Chinese Big Five Personality Inventory brief version.....	121
3.6.3	The Psychological Capital Questionnaire for Adolescent Students	122
3.6.4	The Utrecht Work Engagement Scale-Student.....	124
3.6.5	Interview protocol	126
3.7	Pilot Study	127
3.8	Data Collection.....	131
3.9	Ethical Concerns	132
3.10	Data Analysis.....	133
3.10.1	Cross-Sectional Field Surveys Data Analysis	134
3.10.2	Semi-Structure Interview Data Analysis	136

3.11	Validity and Reliability in Mixed Methods Research	138
3.11.1	Validity	138
3.11.2	Reliability	140
3.12	Summary	141
CHAPTER 4	RESULTS	142
4.1	Introduction	142
4.2	Preliminary Data Analysis.....	142
4.2.1	Data Preparation.....	142
4.2.2	Handing of Missing Values	143
4.2.3	Normality Diagnostics	143
4.2.4	Common Method Variance Bias	153
4.2.5	Multicollinearity - VIF Values	154
4.2.6	Participants' Background Information	155
4.2.7	Confirmatory Factor Analysis.....	157
4.2.8	Reliability	164
4.2.9	Average Variance Extracted (AVE).....	165
4.3	Hypotheses Testing.....	166
4.3.1	Perceived Social Support and Learning Engagement.....	167
4.3.2	Personality Traits and Learning Engagement	171
4.4.3	Psychological Capital and Learning Engagement.....	177
4.4.4	Gender Moderating Effect.....	183
4.4.5	Class leader and Non-Class Leader Moderating Effect	187
4.4.6	Summary of Hypothesis Results	191

4.8	Results	194
4.8.1	Results for the First Question.....	194
4.8.2	Results for the Second Question	195
4.8.3	Results for the Third Question	196
4.8.4	Results for the Fourth Question	197
4.8.5	Results for the Fifth Question	198
4.8.6	Results for the Sixth Question.....	198
4.9	Qualitative Analysis	199
4.9.1	Preparation and Data Organization	199
4.9.2	Exploratory Analysis and Initial Sub-theme Generation	201
4.9.3	Deep Dive into Sub-Theme and Theme Identification.	202
4.9.4	Analyzing and Reviewing Themes	203
4.10	Summary	213
CHAPTER 5 DISCUSSION AND CONCLUSIONS		214
5.1	Introduction	214
5.2	Discussion	214
5.2.1	Discussion of the First Research Question.....	214
5.2.2	Discussion of the Second Research Question	217
5.2.3	Discussion of the Third Research Question	220
5.2.4	Discussion of the Fourth Research Question	223
5.2.5	Discussion of the Fifth Research Question	225
5.2.6	Discussion of the Sixth Research Question	228
5.3	Implications of the study	231

5.3.1	Implications for Theory.....	232
5.3.2	Implications for Practice	236
5.4	Recommendations for Future Research	239
5.5	Summary	240
REFERENCES		243

APPENDICES

LIST OF TABLES

		Page
Table 3. 1	Sample size	117
Table 3. 2	Research Variables.....	118
Table 3. 3	The Child and Adolescent Social Support Scale	120
Table 3. 4	The Chinese Big Five Personality Inventory brief version	122
Table 3. 5	The Psychological Capital Questionnaire for Adolescent Students	123
Table 3. 6	The Utrecht Work Engagement Scale-Student Version.....	125
Table 3. 7	The Child and Adolescent Social Support Scale Cronbach’s Alpha	129
Table 3. 8	The Chinese Big Five Personality Inventory Brief Version Cronbach’s Alpha	129
Table 3. 9	The Psychological Capital Questionnaire for Adolescent Students Cronbach’s Alpha	130
Table 3. 10	The Utrecht Work Engagement Scale-Student Version Cronbach’s Alpha	130
Table 3. 11	The Semi-Structured Interview Polit Study of Students.....	130
Table 4. 1	The Skewness and Kurtosis for Each Item of the Perceived Social Support	144
Table 4. 2	The Skewness and Kurtosis for Each Dimension of the Perceived Social Support	145
Table 4. 3	The Skewness and Kurtosis for Each Item of the Personality Traits.....	146
Table 4. 4	The Skewness and Kurtosis for Each Dimension of the Personality Traits	149
Table 4. 5	The Skewness and Kurtosis for Each Item of the Psychological Capital	150

Table 4. 6	The Skewness and Kurtosis for Each Dimension of the Psychological Capital.....	151
Table 4. 7	The Skewness and Kurtosis for Each Item of the Learning Engagement	152
Table 4. 8	The Skewness and Kurtosis for Each Dimension of the Learning Engagement	153
Table 4. 9	The Multicollinearity of Variables.....	155
Table 4. 10	Senior High School Students Sample.....	156
Table 4. 11	Summary Statistics for All Variables (N=867).....	156
Table 4. 12	Summary Statistics for All Dimensions (N=867).....	157
Table 4. 13	Results of KMO and Bartlett’s Test of Sphericity	158
Table 4. 14	Confirmatory Factor Analysis for Perceived Social Support	158
Table 4. 15	Confirmatory Factor Analysis for Personality Traits.....	160
Table 4. 16	Confirmatory Factor Analysis for Psychological Capital.....	162
Table 4. 17	Confirmatory Factor Analysis for Learning Engagement	164
Table 4. 18	Reliability for All Constructs.....	165
Table 4. 19	Average Variance Extracted (AVE)	166
Table 4. 20	Regression Analysis of Perceived Social Support and Learning Engagement	168
Table 4. 21	Regression Analysis of Dimesions of Perceived Social Support and Vigor	169
Table 4. 22	Regression Analysis of Dimesions of Perceived Social Support and Dedication.....	170
Table 4. 23	Regression Analysis of Dimesions of Perceived Social Support and Absorption	171
Table 4. 24	Regression Analysis of Personality Traits and Learning Engagement ...	172

Table 4. 25	Regression Analysis of Dimensions of Personality Traits and Vigor.....	174
Table 4. 26	Regression Analysis of Dimensions of Personality Traits and Dedication.....	175
Table 4. 27	Regression Analysis of Dimensions of Personality Traits and Absorption.....	177
Table 4. 28	Regression Analysis of Psychological Capital and Learning Engagement.....	178
Table 4. 29	Regression Analysis of Dimensions of Psychological Capital and Vigor.....	179
Table 4. 30	Regression Analysis of Dimensions of Psychological Capital and Dedication.....	181
Table 4. 31	Regression Analysis of Dimensions of Psychological Capital and Absorption.....	182
Table 4. 32	Regression Analysis of Perceived Social Support and Learning Engagement (Z=1).....	183
Table 4. 33	Regression Analysis of Perceived Social Support and Learning Engagement (Z=2).....	184
Table 4. 34	Regression Analysis of Personality Traits and Learning Engagement (Z=1).....	185
Table 4. 35	Regression Analysis of Personality Traits and Learning Engagement (Z=2).....	185
Table 4. 36	Regression Analysis of Psychological Capital and Learning Engagement (Z=1).....	186
Table 4. 37	Regression Analysis of Psychological Capital and Learning Engagement (Z=2).....	186
Table 4. 38	Regression Analysis of Perceived Social Support and Learning Engagement (Z=1).....	188

Table 4. 39	Regression Analysis of Perceived Social Support and Learning Engagement (Z=2).....	188
Table 4. 40	Regression Analysis of Personality Traits and Learning Engagement (Z=1).....	189
Table 4. 41	Regression Analysis of Personality Traits and Learning Engagement (Z=2).....	189
Table 4. 42	Regression Analysis of Psychological Capital and Learning Engagement (Z=1).....	190
Table 4. 43	Regression Analysis of Psychological Capital and Learning Engagement (Z=2).....	191
Table 4. 44	Summary of the Acceptance or Rejection of Hypotheses	200
Table 4. 45	Semi-Structured Interview with Students background information	201
Table 4. 46	Example of Sub-Theme.....	201
Table 4. 47	Thematic Analysis of How Gender Influence Learning Engagement....	203
Table 4. 48	Thematic Analysis of How Class Leader and Non-Class Leader Influence Learning Engagement.....	203

LIST OF FIGURES

	Page
Figure 2. 1 The Theoretical Framework	103
Figure 2. 2 The Conceptual Framework	104
Figure 3. 1 Convergent Design	108
Figure 3. 2 Non-Proportional Stratified Sampling Diagram.....	116

LIST OF APPENDICES

- Appendix A Permission Letter
- Appendix B Research Instruments
- Appendix C Consent Information Form
- Appendix D Interview Protocol
- Appendix E Qualitative Analysis Validation Form
- Appendix F Cohen's Kappa Coefficient

**PENGARUH SOKONGAN SOSIAL YANG DIRASAKAN, CIRI
PERSONALITI DAN MODAL PSIKOLOGI TERHADAP PENGLIBATAN
PEMBELAJARAN DALAM KALANGAN PELAJAR SEKOLAH
MENENGAH ATAS DI CHINA**

ABSTRAK

Kajian ini bertujuan untuk menyiasat pengaruh sokongan sosial yang dirasakan, ciri-ciri personaliti dan modal psikologi terhadap penglibatan pembelajaran dalam kalangan pelajar sekolah menengah atas di China. Kajian ini menggunakan reka bentuk kaedah campuran penumpuan yang melibatkan gabungan kaedah kuantitatif dan kualitatif. Secara kuantitatif, terdapat 867 pelajar sekolah menengah atas yang terlibat dalam kajian ini. Data dianalisis menggunakan SPSS 26.0. Hasil kajian terbukti sah dan boleh dipercayai dari segi kebolehpercayaan dan kesahan konstruk. Pengaruh sokongan sosial yang dirasakan terhadap penglibatan pembelajaran adalah signifikan ($R^2 = 0.489$, $F = 828.878$, $P < 0.001$). Pengaruh ciri-ciri personaliti terhadap penglibatan pembelajaran adalah signifikan ($R^2 = 0.328$, $F = 422.731$, $P < 0.001$). Pengaruh modal psikologi terhadap penglibatan pembelajaran adalah signifikan ($R^2 = 0.418$, $F = 620.637$, $P < 0.001$). Jantina, ketua kelas dan bukan ketua kelas secara berkesan mengawal pengaruh sokongan sosial yang dirasakan, ciri-ciri personaliti, dan modal psikologi terhadap penglibatan pembelajaran. Secara kualitatif, terdapat 10 pelajar sekolah menengah atas terlibat dalam kajian ini. Hasil temu bual menunjukkan bahawa terdapat beberapa perbezaan dalam penglibatan pembelajaran antara lelaki dan perempuan bagi tema-tema berikut: gaya pembelajaran, aspek fizikal, dan aspek mental.

Selain itu, hasil temu bual juga menunjukkan bahawa terdapat beberapa perbezaan dalam penglibatan pembelajaran antara ketua kelas dan bukan ketua kelas pada tema-tema berikut: keyakinan, kemampuan peningkatan, dan rasa tanggungjawab. Pengetahuan yang diperoleh daripada kejian ini boleh menggalakkan penglibatan dan kejayaan pembelajaran pelajar, akhirnya meningkatkan kualiti pendidikan bagi pelajar sekolah menengah atas di China.

**THE INFLUENCE OF PERCEIVED SOCIAL SUPPORT, PERSONALITY
TRAITS, AND PSYCHOLOGICAL CAPITAL ON LEARNING ENGAGEMENT
AMONG SENIOR HIGH SCHOOL STUDENTS IN CHINA**

ABSTRACT

This study aimed to investigate the influence of perceived social support, personality traits and psychological capital on learning engagement among senior high school students in China. This study was performed using the convergent mixed method design which involved the combination of quantitative and qualitative methods. Quantitatively speaking, there were 867 senior high school students involved in this study. Data were analyzed using SPSS 26.0. The results have proven to be valid and reliable in terms of construct reliability and validity. The influence of the perceived social support on the learning engagement was significant ($R^2 = 0.489$, $F = 828.878$, $P < 0.001$). The influence of the personality traits on the learning engagement was significant ($R^2 = 0.328$, $F = 422.731$, $P < 0.001$). The influence of the psychological capital on the learning engagement was significant ($R^2 = 0.418$, $F = 620.637$, $P < 0.001$). Gender, class leader and non-class leader effectively moderate the influence of perceived social support, personality traits, and psychological capital on learning engagement. Qualitatively speaking, there were 10 senior high school students involved in this study. The interview results show that there are some differences in learning engagement between boys and girls on the following themes: learning style, physical aspects, and mental aspects. On the other hand, the interview results indicate that there

are some differences in learning engagement between class leader and non-class leader on the following themes: confidence, improve ability, and sense of responsibility. The insights gained from this research can promote students' learning engagement and success, ultimately enhancing the quality of education for senior high school students in China.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Learning engagement is defined as vigor, dedication, and absorption (Schaufeli et al., 2002). Vigor is regarded as having abundant energy and mental resilience during learning process, and achieving success even when facing difficulties, and persisting in the pursuit of learning process. Dedication refers to particularly strong involvement and commitment that students have towards their learning process. Absorption is considered as being focused and immersed in learning process, losing track of time, and having difficulty separating oneself from the learning process (Schaufeli et al., 2002). This engagement directly impacts various school factors, such as teachers' professional identity and the creation of a positive school atmosphere. Moreover, it has been observed to contribute to the improvement of academic performance among students who have previously struggled scholarly, as well as reducing levels of student dissatisfaction and dropout rates (Lei et al., 2018). Learning engagement has received considerable scholarly attention in recent years (Tuominen-Soini & Salmela-Aro, 2014). Numerous scholars have focused on their attention towards enhancing students' learning engagement as a crucial pathway to achieving educational success and improving the overall quality of education (Ansong et al., 2017).

Numerous published studies indicated that students' learning engagement is significant in various areas, including depression, delinquency, substance use, high dropout rates, high rates of student boredom and alienation, promoting motivation, school adjustment, mental health, and school atmosphere (Cao & Liu, 2018; Fredricks et al., 2016;

Guo et al., 2015; Loscalzo & Giannini., 2020; McCoy et al., 2014; Zhou, 2021). For instance, Liu et al. (2023) stated that students who actively engage in learning process exhibit higher resilience. Additionally, learning engagement provides an effective and reliable means of evaluating students' learning, and consistently guides teachers, parents, students, educational administrators, and research scholars. Therefore, mastering appropriate assessment methods for learning engagement is helpful for conducting research on senior high school students' learning engagement.

This chapter provides a background of the study and outlines the problem statement. In addition, this chapter presents the purpose of the study. Following this, the research objectives are described, and the research questions are then proposed, the significance of the study is also elaborated, followed by the conceptual and operational definition used in this study. Lastly, this chapter concludes with limitations used in this study and the summary.

1.2 Background of the Study

The assessment of learning engagement is one of the main topics in the process of evaluating student learning, finding valid and reliable instruments to measure learning engagement has been a focus for researchers studying learning engagement (Ansong et al., 2017). To assess the influence of different constructs on learning engagement among senior high school students, this study utilizes SPSS 26.0 to test the research hypotheses. This study can provide valuable insights for student assessment and subject development in senior high school education management.

1.2.1 Learning Engagement in Global

Goal 4 of the 2030 Agenda for United Nations Sustainable Development Goals (SDGs) proposes to guarantee inclusive and equitable quality education, along with lifelong learning opportunities for everyone. By 2030, it seeks to ensure that all girls and boys complete free, equitable and quality primary and secondary education, achieving relevant and effective learning outcomes (Carlsen & Bruggemann, 2022). In today's rapidly changing world, to achieve effective learning outcomes, increasing student engagement serves as a key pathway. From a global perspective, understanding students' learning engagement provides us with a fundamental insight into their educational experiences and outcomes.

Fortunately, extensive research indicates that the importance of learning engagement is widely recognized across countries worldwide. High levels of student learning engagement have been acknowledged as a crucial factor in senior high school education, as it has an essential effect on students' academic success and personal growth. In America, Shernoff and Schmidt (2008) reported that students with high learning engagement are in high demand in secondary education, these are better equipped to face the challenges of life and learning. In Finland, Widlund et al. (2021) stated that increasing student engagement serves as a vital pathway to educational success and improves the quality of education. In contrast, Low levels of learning engagement not only limit learner's achievement but may also affect the learner's future, such as further education, dropping out of school, employment, and problem behavior (Watson & Christensen, 2017).

As far as the researcher knows, the state of learning engagement varies across different countries and regions globally. Specifically, In Italy, two studies showed that there are low engagement and high rates of student burnout (Cooper, 2013; Molinari and

Grazia, 2023). In Finland, a study also found that students' engagement, interest, and enthusiasm with the curriculum are limited throughout the education (Niittylahti et al., 2023). In Morocco, Turkey, Poland, Italy, Engels et al. (2020), a longitudinal study on learning engagement had shown a decrease in learning engagement as students' grade levels increase, which places them at increased risk of school drop-out and academic failure (Janosz et al., 2008). According to Li and Lerner (2011), adolescents in the declining emotional engagement or temporary declining behavioral engagement groups reported the lowest grades, the highest rates of delinquency and substance abuse, and they had the highest levels of depression, and adolescents experiencing problems with school engagement were less happy. Therefore, learning engagement plays a crucial role in education in various countries.

In other words, to achieve the goal of SDGs especially the inclusive and equitable quality education for everyone, understanding and fostering students' learning engagement is crucial on a global scale. High levels of learning engagement are significant for students' academic success and personal growth. Whereas low level of learning engagement tends to lead to negative academic performance, such as dropping out and depression (Armstrong et al., 2023; Widlund et al., 2021). Thus, researchers need to pay attention to the vital role of students' learning engagement in education. Based on the above understanding, next part further describes the learning engagement in China.

1.2.2 Learning Engagement in China

In China, there has been significant research and policies emphasis on the importance of senior high school students' learning engagement. China's National Education Reform and Development Plan (2010-2020) emphasizes the vital role of senior high school education in shaping students' personalities, fostering independent

development, and enhancing the nation's quality and innovative talent cultivation (Li, 2020). Thus, researchers should pay attention to cultivating students' ability of independent learning and fostering a scientific system for evaluating educational quality.

The Core Competencies and Values for Chinese Students' Development outlines the fundamental character and key skills that students need to meet the challenges of lifelong learning and social development. To cultivate a "well-rounded individual", three aspects should be considered: cultural foundation, independent development, and social participation, which can be described through six major literacies: humanistic heritage, scientific spirit, learning how to learn, healthy life, responsibility, and practical innovation, the overall framework of this policy includes "learning how to learn" as one of the six core literacies necessary for students. Students who have a high level of "learning how to learn" literacy can recognize and understand the value of learning, have a positive learning attitude and strong interest in learning, with lifelong learning awareness and ability (Lian, 2022; Cai, 2020).

Thus, increasing students' learning engagement is one of the major elements to enhance their "learning how to learn" literacy and educational quality. What's more, the overall framework of this policy includes "healthy life" as one of the six core literacies necessary for students. Students with a high level of "health life" literacy exhibit a well-developed and positive personality, characterized by traits such as self-efficacy, tenacity, and optimism. They possess the ability to effectively adjust and manage their emotions, demonstrating anti-frustration capabilities. Moreover, they display accurate self-understanding and self-evaluation, which allows them to make informed decisions regarding their personal and professional development. They allocate time and energy wisely, consistently taking purposeful actions towards achieving their goals. This level of

literacy contributes to their adaptability, resilience, and overall success. Among various factors, personality types have an impact on the development of learning ability and healthy life. Therefore, teachers, parents, and educational administrators can adopt appropriate intervention measures for students with different personality types (Lin, 2021; Lian, 2022).

In October 2020, the Central Committee of the Communist Party of China and the State Council clearly required in the General Plan for Deepening Education Evaluation Reform in the New Era: “Improve outcomes, strengthen processes, explore value-added, comprehensive evaluation, scientific, professional and objective nature of education evaluation” (Chang, 2023). As an evaluation of learning process, the level of learning engagement reflects whether students can establish a clear, long-term goal during their school years and whether it has a positive influence on their academic, physical, mental health development. Furthermore, the level of learning engagement can objectively and directly demonstrate the effectiveness of education. Hence, the determinant to promoting quality education is to foster learning engagement comprehensively and effectively among students (Zhou, 2020).

In the provinces of Heilongjiang, Henan, and Liaoning in China, learning engagement is an important observation indicator in a student’s learning process, serving as a crucial predictive factor of academic performance, education quality, and student development. It is also an essential component for achieving academic success (Guo, 2018; Zhang, 2020). Fang et al. (2008) revealed that learning engagement is an enduring and positive state of mind that is both emotionally and cognitively fulfilling. It is related to learning, research, and employment, with three core dimensions: vigor, dedication, and absorption. Learning engagement is a pivotal indicator of positive psychological state and

contributes to positive qualities such as optimism, resilience, meaningfulness, and creativity. Consequently, learning engagement is influential role in fostering the maturity and students' development, providing them with a strong foundation to successfully transition into society.

However, despite these efforts, there are still several challenges that need to be addressed regarding Chinese students' learning engagement. According to Jin (2014), a survey conducted in Fuzhou city, Fujian province, China had shown that middle school students exhibit various negative learning behaviors, such as disinterest in course content, mobile phone usage in class, chatting and sleeping. Behaviorally, students exhibit passive learning. Emotionally, they show a lack of confidence in learning and limited teacher-student interaction. Cognitively, there are misconceptions and insufficient training in critical thinking. Consequently, the research has chosen to investigate the learning engagement among students in China.

1.2.3 Perceived Social Support

According to Kerres Malecki and Kilpatrick Demary (2002), perceived social support refers to an individual's perception of the general support or specific supportive behaviors provided by those within their social network, which are available and enacted. These supportive interactions enhance their overall functioning and serve as a buffer against adverse outcomes. Extensive research has been conducted by countries worldwide on the perception of social support, recognizing its significance, particularly in evaluating student learning engagement. The following section provides further clarification on this topic. In this study, perceived social support encompasses two dimensions: support from parents and teachers.

Research conducted in different nations has consistently demonstrated the positive effects of social support on individuals' well-being and development (Yuan et al., 2023). As process evaluation and student-centered education gain more attention, learning engagement has become an increasingly important area of research. Previous studies have demonstrated that adolescents who perceive support from parents and teachers perform better in school and achieve higher levels of academic achievement. Additionally, individuals who perceive greater social support are better able to adapt to the challenges they face when entering school, which can reduce anxiety and depression, promote subjective well-being, life satisfaction, and mental health (Lian, 2022; Wu et al., 2023; Yang et al., 2022; Yuan et al., 2023; Zhang, 2023; Zuo, 2022).

In the Chinese context, the correlation between perceived social support and learning engagement has been the key point of many scholarly pursuits (Xu, 2023). For example, Feng (2020) pointed to a noteworthy inverse relationship: the higher level of perceived social support among secondary school students, the lower level of burnout. This idea of enhanced learning engagement considering increased social support was further supported by Lian (2022), based on research with 682 students in Sichuan province, China, the results indicated that students with higher levels of perceived social support shows higher learning engagement. Continuous social support from both school and home aids students in handling daily academic stress and boosts their academic self-efficacy, leading to a more learning state. Similarly, Cao et al. (2018) drew a significant correlation. identifying that university students who perceived greater social support exhibits a significant adaptability in their learning behaviors, especially pertinent in today's changing and challenging environment. This adaptability aspect was further corroborated by Zhang (2018), whose findings showed students perceived social support influenced

learning engagement. And the higher level of perceived social support, the more engaged students are in their learning. Moreover, Li (2021) explored 300 students in Yunnan province of China, discovered that the dimension of perceived social support, namely perceived teacher support, can significantly and positively influence students' engagement in learning. Thus, this study chooses perceived social support as an important variable to investigate learning engagement.

1.2.4 Personality Traits

Personality traits is described as a range of behavioral, cognitive, and emotional patterns that have developed due to biological and environmental influences (DeYoung et al., 2007). Personality traits can commonly be assessed through self-reported questionnaire. The Big Five model of personality traits, also known as the Big Five Factors, has become a popular measure of personality dimensions. It comprises five dimensions: agreeableness, conscientiousness, extraversion, openness to experience, and neuroticism (Wang et al., 2011). In Belgium, Janssens et al. (2018) reported that personality traits are strongly linked to learning engagement. Additionally, in Britain, Qureshi et al. (2016) reported that agreeableness, conscientiousness, and learning engagement have essential positive correlations. Furthermore, Mammadov (2022) stated that openness to experience is an essential determinant of student achievement at early stage of school.

In the Chinese context, the correlation between personality traits and learning engagement has received considerable attention (Wang, 2019). Specifically, Nie et al. (2011) in their study involving 908 secondary school students in Guangzhou, and Cheng et al. (2022) in their survey of 686 vocational college students, all identified a substantial positive interrelation between extraversion and adaptive learning behavior. Further clarification comes from Zhang (2022) in Fujian province, China, with a study of 836

students, establishing that openness to experience significantly impacts student learning. Liu et al. (2020) research on 1,128 vocational nursing students agreed that the dimension of personality traits, namely neuroticism was negatively correlated with learning engagement or adaptive learning behaviors. Consequently, this study chooses personality traits as an important variable to investigate learning engagement.

1.2.5 Psychological Capital

Psychological capital is defined as the development of states that motivate behavior in individuals (Preston et al., 2023). It includes four dimensions: hope, optimism, self-efficacy, and resilience (Ye & Fang, 2015). In Norway and China, the importance of psychological capital has been recognized by an increasing number of studies (Slåtten et al., 2023; Fei et al., 2023; Wang et al., 2023). Previous studies have found that psychological capital is related to subjective well-being, life satisfaction, depression, anxiety, psychological problem (Preston et al., 2023; Finch et al., 2020; Wu et al., 2019).

In China, psychological capital can not only be measured but also developed in certain ways, and the adolescent stage is the prime time for individual development. Hence, focusing on the cultivation of students' psychological capital during this period can help individuals effectively deal with learning difficulties and obstacles in life, which can also buffer the impact of negative events such as academic pressure and negative emotions on their studies. It makes students more confident and optimistic in the face of various events, helping them adopt more positive attitudes and strategies to overcome learning difficulties (Xiao, 2022).

The empirical evidence surrounding the influence of psychological capital on learning engagement is robust in the Chinese context, Han (2022) focused on normal university students majoring in preschool education in Jiangsu province, China. Their

research concluded that psychological capital acts as an intrinsic psychological strength that notably predicts learning engagement. The study also revealed that during challenging learning tasks, psychological capital offers substantial energy support, allowing students to handle professional education demands more easily with less mental effort and fewer resources. This suggests that psychological capital not only influences engagement but also serves as a buffer, conserving students' mental resources. Therefore, this study chooses psychological capital as an important variable to investigate learning engagement.

1.3 Statement of the Problem

Learning engagement is vital for academic success, personal development, and well-being, a fact globally acknowledged, as reflected in the United Nations Sustainable Development Goals (Carlsen & Bruggemann, 2022). Research consistently shows its positive effects on academic performance and education quality (Armstrong et al., 2023; Widlund et al., 2021). Additionally, it is pivotal for personal growth, contributing to skills such as self-identity and effective learning (Liu, 2020; Lian, 2022). In China, it's a key indicator of academic achievement and student development (Fang et al., 2008; Guo, 2018). Given the global emphasis on quality education and learning engagement's significant role, understanding its influencing factors is crucial. Therefore, this study concentrates on Chinese senior high school students' learning engagement and its determinants, aiming to enhance the theoretical understanding and practices for improving learning engagement.

Although the importance of learning engagement is widely recognized, a series of studies over the years have painted a concerning picture of this challenge. Notably, Jia (2019) conducted a study with 385 students in Fuzhou City, Fujian Province, China,

revealing that students often lacked interest in course content, indulged in in-class distractions such as chatting and using cell phones, and even resorted to sleeping during lectures. Subsequent investigations by Jia (2019) and Liu (2016) reaffirmed these findings, emphasizing issues ranging from lackluster behavioral engagement to challenges in emotional and cognitive domains. By the time of Chen (2019)'s research, there was a discernible decline in engagement as students advanced through grades, especially highlighted among junior high students in Xinjiang Uygur Autonomous Region. Which represents increased risk of high dropout rates, depression, delinquency, substance use, high rates of student boredom and academic failure (Engels et al., 2020; Fall & Roberts, 2012; Fredricks, 2016; Loscalzo & Giannini, 2020; McCoy et al., 2014). In the Chinese educational context, the issue of low learning engagement among senior high school students is prevalent and even more pronounced than in many other countries (Du, 2022; Tan, 2021; Kong, 2022; Cao & Liu, 2018; Guo et al., 2015; Zhou, 2021). Thus, this study focus on Chinese senior high school students learning engagement and it's influencing factors.

Chinese National Education Reform and Development Plan (2010-2020) emphasizes the vital role of senior high school education in shaping students' personality, fostering independent development, and enhancing the nation's quality and innovative talent cultivation. The senior high school stage is an essential period in adolescent development, particularly in the context of China, where students are required to participate in the highly competitive college entrance examination. Faced with a heavy academic workload, senior high school students endure substantial pressures from both internal and external environments. Many students exhibit signs of low learning engagement, namely a lack of interest in studies, poor academic efficiency, declining

grades, and in some cases, truancy or even dropping out (Feng, 2021; Du, 2022; Cao, 2020). Thus, this research aims to address the contradiction between the existing problem of insufficient students' learning engagement and other variables, providing a more detailed understanding of senior high school students' learning engagement in China.

When it comes to the perceived social support, it plays an essential role in the learning process. According to Lian (2022), perceived social support affects individual learning engagement. When individuals perceive understanding and support from others, they are more likely to maintain a positive state when facing challenges and sustain higher levels of learning engagement. Feng (2020) showed that the higher level of perceived social support among secondary school students, the lower level of burnout. Previous studies have investigated the influence of perceived social support on learning engagement, finding that perceived social support can enhance students' learning engagement (Wentzel et al., 2021).

According to Ansong et al. (2017), the dimensions of perceived social support, namely parental support, had influences on learning engagement. The study also found a notable positive influence of parental support on student behavioral engagement, but a significant negative influence of parental support on student emotional engagement. The observed outcomes may be attributed to the following reasons. Parental support is pivotal in many aspects of students' learning engagement, yet it is crucial to note that excessive parental support can have negative impacts. Overbearing parental pressure can negatively affect students' emotional well-being. In the Ghanaian context, the inconsistent influence of teacher support on student engagement might be attributed to the educational system, which remains predominantly didactic and hierarchical. Another potential reason might be the variations in class sizes and teacher workloads, leading to a high student-teacher

ratio that does not allow for close student-teacher relationships (Ansong et al., 2017). Although an extensive body of literature champions the integral role of perceived social support in determining student learning engagement. The influence of perceived social support on learning engagement remains controversial. For example, the dimensions of perceived social support do not have the same effect on learning engagement. Therefore, this study sought to further investigate the influence of perceived social support on learning engagement among the senior high school students in China.

Moreover, previous research exhibited that learning engagement is not only link to perceived social support, but also is associated with personality traits (Kong, 2022). Personality traits have a significant influence in shaping individuals' psychological experiences of learning (Poort et al., 2023; Qureshi et al., 2016). Over the past few decades, the relationship between personality traits and learning engagement has received considerable attention (Wang, 2019). For example, Su (2023) delved deeper into the intricate dynamics of the personality traits relevant to vocational school students in Beijing. The study illuminated that, while conscientiousness remains pivotal in influencing learning engagement. Specifically, conscientious students typically exhibit traits of meticulousness, self-discipline, and an innate drive for accomplishment. To conclude, conscientiousness, as a dimension of personality traits, has a notable effect on influencing students' learning engagement across various academic settings and populations. The dimension of personality traits, namely neuroticism, has garnered interest in its potential implications for learning engagement.

Moreover, neuroticism refers to feelings of sadness, moodiness, and emotional instability, students maintaining this trait are inclined to experience mood swings, depression, and disappointed. Neuroticism students may be prone to feeling overwhelmed

and stressed by academic pressures or personal challenges. They may have difficulty managing their emotions (Cheng et al., 2022; Liu et al., 2020). In addition, students with openness to experience are likely to exhibit a broad range of interests. They are inquisitive about the world and those around them, eagerly seeking knowledge and relishing new experiences (Crede et al., 2008; Cheng et al., 2022; Liu et al., 2020). As Shen (2016) stated that further research can also be carried out to assess the influence of personality traits on learning engagement. Consequently, this study examined the influence of personality traits on learning engagement among senior high school students in China.

Over the past few decades, the influence of psychological capital on learning engagement has received considerable attention (Pang, 2021). Psychological capital is considered as the development of states that motivate behavior in individuals (Preston et al., 2023). According to Xiao (2022), internal factors of students significantly influence their learning engagement, with psychological capital among junior high school students being identified as an essential element. Moreover, psychological capital encompasses four dimensions: self-efficacy, hope, resilience, and optimism (Vîrgă et al., 2020). Besides, psychological capital serves as a crucial psychological resource for students, particularly during times of stress and when confronted with negative situations such as setbacks. It enables students to enhance a resilience, facilitating their ability to bounce back from failures, maintain a positive outlook, and foster a sense of hope (King et al., 2020). Consequently, students with higher psychological capital are prone to show increased engagement in their learning endeavors (Ali et al., 2022).

Based on the review of the prior research, there is a population gap. Some of these sub-populations have been unexplored and under researched. The senior high school students appear to be important and worthy of investigation in the context of China. An

investigation of this group is important because the vital role of senior high school education in shaping students' personalities, fostering independent development, and enhancing the nation's quality and innovative talent cultivation (Li, 2020). Furthermore, previous research has focused primarily on this population of junior high school students (Han, 2022) and college students (Zhang, 2020). Very little research has been done on senior high school students. Thus, this study investigated the influence of psychological capital on learning engagement among senior high school students in China.

Moreover, the strength of the influence of perceived social support, personality traits, and psychological capital on learning engagement may not be the same for girls and boys (Deng, 2019). According to Jiang (2020), gender roles in society contribute to the development of distinct psychological characteristics and behavioral patterns in boys and girls. Gender differences in self-reported learning engagement remain inconsistent (Yin, 2020). Some studies have reported that there are notable gender differences in learning engagement (Zhou, 2021; Tan, 2021; Xu, 2021; Li, 2020). On the other hand, some studies have shown no significant gender differences in learning engagement (Du, 2022; Feng, 2021; Liu, 2020; Li, 2018). Hence, it is important to explore whether the gender moderates the influence of the perceived social support, personality traits, and psychological capital on students' learning engagement and further clarify how gender influences students' learning engagement. To achieve this, the cross-sectional field surveys, as a quantitative method, enable the collection of data from many participants within a relatively short period. Moreover, the semi-structure interview as a qualitative method, allows for a deeper exploration of phenomena, it may provide a detailed understanding of the underlying factors influencing individual responses (Liu, 2023). Although Chen (2022) used qualitative research methods by interviewing students, only focused on a single grade

within a specific school. This study expanded the study population to include a broader range of schools or educational settings. This approach aims to enhance external validity and achieve a broader insight into the subject.

Furthermore, the strength of the influence of perceived social support, personality traits, and psychological capital on learning engagement may not be the same for class leader and non-class leader (Deng, 2019). According to Zhou (2021), holding class leadership positions serves as a role model, fostering pride and encouraging higher academic efficacy, enthusiasm, and persistence in students. Consequently, the desire to maintain their roles motivates students to enhance their engagement, thereby elevating their overall learning engagement. Furthermore, some studies have reported significant differences in learning engagement between being class leader and non-class leader (Tan, 2021; Zhou, 2021; Zhu, 2022), while others have found no significant differences (Feng, 2021). Accordingly, conflicting results from studies suggest the need for new investigations that explore whether the class leader and non-class leader moderates the influence of the perceived social support, personality traits, and psychological capital on students' learning engagement and how class leader and non-class leader affects the learning engagement. The interview method as a qualitative method, allows for a deeper exploration of phenomena, compensating for the limitations of the questionnaire method and capturing more authentic thoughts of participants (Liu, 2023). By conducting the qualitative method, researchers can gain a better understanding of how class leader and non-class leader influence the learning engagement.

Reliability is an evaluation of the extent to which potentially constructed indicators are internally consistent, based on the extent to which they are interrelated (Hair et al., 2014). Validity refers to the extent to which a research instrument can accurately evaluate

the characteristic being assessed, or simply the precision and usefulness of a test. Validity is the most critical condition for scientific measurement, and it is highly demanding for questionnaires or scales. To evaluate validity, it is necessary to specify what is being evaluated and to analyze its nature and characteristics, checking whether the content aligns with the aim of the measurement and whether the findings reflect the extent of quality being measured (Chen, 2016).

Based on the global and Chinese literature reviews, along with the previous discussion, the evaluation of learning engagement is essential for senior high schools. Furthermore, within both global and Chinese contexts, no prior studies have measured the influence of perceived social support, personality traits, and psychological capital on learning engagement for senior high school students. Hence, this research aims to address the gap in the literature by examining the influence of perceived social support, personality traits, and psychological capital on learning engagement among senior high school students in China.

1.4 Purpose of the Study

The purpose of this study seeks to understand the relationship that exist among perceived social support, personality traits, psychological capital, and learning engagement among senior high school students in China. It also seeks to understand whether the gender, class leader and non-class leader acted as moderating variables on the influence of perceived social support, personality traits, and psychological capital on learning engagement among senior high school students in China.

1.5 Objectives of the Study

1. To obtain a valid and reliable measurement to assess the constructs of perceived social support, personality traits, psychological capital, and learning engagement.

2. To examine the influence of perceived social support on learning engagement among senior high school students in China.

3. To examine the influence of personality traits on learning engagement among senior high school students in China.

4. To examine the influence of psychological capital on learning engagement among senior high school students in China.

5. To examine the moderating effects of gender on the influence of perceived social support, personality traits, and psychological capital on learning engagement among senior high school students in China.

6. To examine the moderating effects of class leaders and non-class leaders on the influence of perceived social support, personality traits, and psychological capital on learning engagement among senior high school students in China.

7. To triangulate the quantitative findings from RO5 and RO6 with qualitative insight to provide a deeper understanding of the moderator effect.

1.6 Research Questions

1. Does the measurement exhibit acceptable validity and reliability for the constructs of perceived social support, personality traits, psychological capital, and learning engagement?

2. Does perceived social support influence learning engagement among senior high school students in China?

3. Does personality traits influence learning engagement among senior high school students in China?

4. Does psychological capital influence learning engagement among senior high school students in China?

5. (a) Does gender moderate the influence of perceived social support, personality traits, and psychological capital on learning engagement among senior high school students in China?

5. (b) How does gender influence learning engagement among senior high school students in China?

6. (a) Does class leaders and non-class leaders effectively moderate the influence of perceived social support, personality traits, and psychological capital on learning engagement among senior high school students in China?

6. (b) How does class leaders and non-class leaders influence learning engagement among senior high school students in China?

1.7 Research Hypothesis

The following hypotheses were developed for statistical purposes:

H1: There is a significant influence of perceived social support on learning engagement among senior high school students in China.

H1.1: There is a significant influence of perceived teacher support on vigor among senior high school students in China.

H1.2: There is a significant influence of perceived parent support on vigor among senior high school students in China.

H1.3: There is a significant influence of perceived teacher support on dedication among senior high school students in China.

H1.4: There is a significant influence of perceived parent support on dedication among senior high school students in China.

H1.5: There is a significant influence of perceived teacher support on absorption among senior high school students in China.

H1.6: There is a significant influence of perceived parent support on absorption among senior high school students in China.

H2: There is a significant influence of personality traits on learning engagement among senior high school students in China.

H2.1: There is a significant influence of on extraversion on vigor among senior high school students in China.

H2.2: There is a significant influence of on conscientiousness on vigor among senior high school students in China.

H2.3: There is a significant influence of on neuroticism on vigor among senior high school students in China.

H2.4: There is a significant influence of on agreeableness on vigor among senior high school students in China.

H2.5: There is a significant influence of on openness to experience on vigor among senior high school students in China.

H2.6: There is a significant influence of on extraversion on dedication among senior high school students in China.

H2.7: There is a significant influence of on conscientiousness on dedication among senior high school students in China.

H2.8: There is a significant influence of on neuroticism on dedication among senior high school students in China.

H2.9: There is a significant influence of on agreeableness on dedication among senior high school students in China.

H2.10: There is a significant influence of on openness to experience on dedication among senior high school students in China.

H2.11: There is a significant influence of on extraversion on absorption among senior high school students in China.

H2.12: There is a significant influence of on conscientiousness on absorption among senior high school students in China.

H2.13: There is a significant influence of on neuroticism on absorption among senior high school students in China.

H2.14: There is a significant influence of on agreeableness on absorption among senior high school students in China.

H2.15: There is a significant influence of on openness to experience on absorption among senior high school students in China.

H3: There is a significant influence of psychological capital on learning engagement among senior high school students in China.

H3.1 There is a significant influence of on self-efficacy on vigor among senior high school students in China.

H3.2: There is a significant influence of on resilience on vigor among senior high school students in China.

H3.3: There is a significant influence of on optimism on vigor among senior high school students in China.

H3.4: There is a significant influence of on hope on vigor among senior high school students in China.

H3.5: There is a significant influence of on self-efficacy on dedication among senior high school students in China.

H3.6: There is a significant influence of on resilience on dedication among senior high school students in China.

H3.7: There is a significant influence of on optimism on dedication among senior high school students in China.

H3.8: There is a significant influence of on hope on dedication among senior high school students in China.

H3.9: There is a significant influence of on self-efficacy on absorption among senior high school students in China.

H3.10: There is a significant influence of on resilience on absorption among senior high school students in China.

H3.11: There is a significant influence of on optimism on absorption among senior high school students in China.

H3.12: There is a significant influence of on hope on absorption among senior high school students in China.

H4.1: Gender moderates the influence of perceived social support on learning engagement among senior high school students in China.

H4.2: Gender moderates the influence of personality traits on learning engagement among senior high school students in China.

H4.3: Gender moderates the influence of psychological capital on learning engagement among senior high school students in China.

H5.1: Class leaders and non-class leaders moderate the influence of perceived social support on learning engagement among senior high school students in China.

H5.2: Class leaders and non-class leaders moderate the influence of personality traits on learning engagement among senior high school students in China.

H5.3: Class leaders and non-class leaders moderate the influence of psychological capital on learning engagement among senior high school students in China.

1.8 Significance of the Study

This study aims to address several gaps in the existing research on the influence of perceived social support, personality traits, and psychological capital on learning engagement among senior high school students in China. By investigating these relationships, this research aids in gaining a more profound insight into the influence of social support on learning engagement and provides guidance for parents and teachers, in providing effective support to students (Wentzel et al., 2021). Additionally, the study assessed the influence of personality traits on learning engagement, providing valuable feedback for teachers to tailor their approaches based on different traits (Poort et al., 2023). Furthermore, the examination of psychological capital's effect on learning engagement offers insights for school authorities to guide students in overcoming learning difficulties and promote education assessment reform (Preston et al., 2023). Finally, this study involves multiple independent variables and creatively utilizes a mixed research method to investigate a less studied population of senior high school students. These innovations greatly enrich the theoretical framework of studying learning engagement and provide valuable references for future research.