



**DEVELOPING A MODEL OF ADULT
LEARNERS' CONTINUOUS LEARNING
INTENTION AT PUBLIC VOCATIONAL
COLLEGES IN NANNING CITY, GUANGXI,
CHINA**

**Xu Xiongbo
6419000026**

**A Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy in
Educational Administration Innovation
Graduate School of Education
Siam University
Academic Year 2026
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Title Developing a Model of Adult Learners' Continuous Learning
Intention as Public Vocational Colleges in Nanning City,
Guangxi, China

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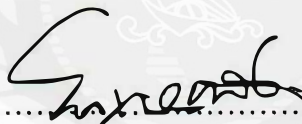
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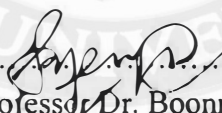
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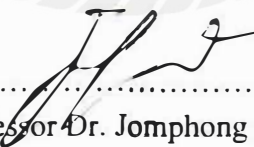

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Abstract

Title Developing a Model of Adult Learners' Continuous Learning Intention as Public Vocational Colleges in Nanning City, Guangxi, China

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Major Educational Administration Innovation

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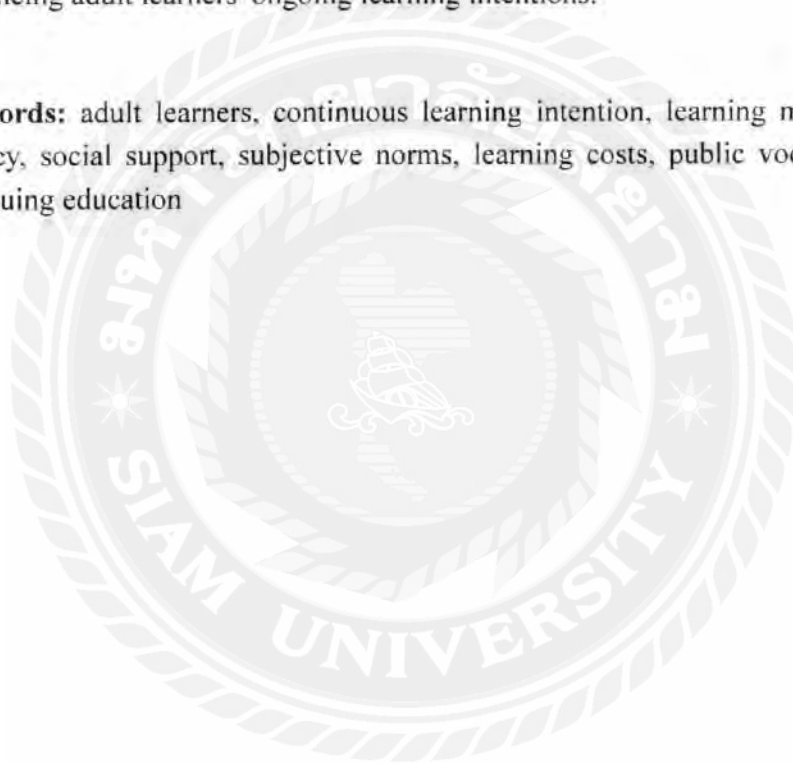
This study investigated the continuous learning intention of adult students in vocational colleges in Nanning, adopting a mixed-methods approach to identify key influencing factors and propose improvement strategies. Five core factors were identified: learning motivation (LM), self-efficacy (SE), social support (SS), subjective norms (SN), and learning costs (LC). Based on these factors, an integrated and empirically validated continuous learning intention model was developed, characterized by a multi-path influence mechanism, clear hierarchical structure, and strong practical adaptability. The model consists of three core components: 1) Driving factors (LM, SS, SN) that positively promote continuous learning intention (CLI); 2) A mediating factors (SE) that links LM to CLI and amplifies the driving effect; 3) A hindering factors (LC) that negatively impacts CLI.

The research methodology involved distributing 413 questionnaires to adult learners, achieving a 100% response rate, and analyzing the data with Structural Equation Modeling (SEM) using SPSS 27 and AMOS 27. The sample was 54% female, mostly aged 26-35 (35.35%), with 56.42% married. Reliability and validity tests confirmed good scale quality (Cronbach's $\alpha > 0.8$; KMO=0.936, Bartlett's $p < 0.001$). The structural model results showed that learning motivation significantly positively influenced self-efficacy ($\beta = 0.392$, $p < 0.05$); self-efficacy, social support, and subjective norms all exerted significant positive effects on continuous learning intention ($\beta = 0.175$, 0.228 , 0.213 respectively, $p < 0.05$); while learning costs had a significant negative impact on continuous learning intention ($\beta = -0.252$, $p < 0.05$). Additionally, self-efficacy played a partial mediating role in the relationship between learning motivation and continuous learning intention.

The conclusion emphasized that learning motivation and self-efficacy were the strongest predictors of continuous learning intention, with social support and subjective norms further enhancing this intention, and learning costs inhibiting it. Practical suggestions included optimizing curriculum design, offering personalized learning paths, building learning support networks, reducing learning costs, and strengthening social support.

Future research should broaden the sample scope, incorporate multiple data collection methods, and examine additional variables, such as the learning environment and teacher quality, to achieve a comprehensive understanding of the factors influencing adult learners' ongoing learning intentions.

Keywords: adult learners, continuous learning intention, learning motivation, self-efficacy, social support, subjective norms, learning costs, public vocational college continuing education



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List of Abbreviations

Abbreviation	Full Name
LM	Learning Motivation
SE	Self-efficacy
SS	Social Support
SN	Subjective Norms
LC	Learning Costs
TWE	Teachers' Work Engagement
SEM	Structural Equation Modeling
TAM	Technology Acceptance Model
JCM	Job Characteristics Model
HRM	Human Resource Management
OST	Organizational Support Theory
TPB	Theory of Planned Behavior
DIF	Differential Item Functioning
WJX	Online Survey Platform
RMSEA	Root Mean Square Error of Approximation
CFI	Comparative Fit Index
GFI	Goodness-of-Fit Index
AGFI	Adjusted GFI
NFI	Normed Fit Index
iFlytek	Technology AI Analysis software
CITC	Corrected Item-Total Correlation
CFA	Confirmatory Factor Analysis
CR	Composite Reliability
KMO	Kaiser-Meyer-Olkin
CMIN/DF	Chi-square/df
IFI	Incremental Fit Index

CHAPTER 1

INTRODUCTION

1.1 Introduction

1.1.1 Technological Advancements and the Need for Lifelong Learning Among Adult Learners

Technology is changing our way of life and work at an unprecedented speed. It leads to a new technological revolution and profoundly influences the adjustment and upgrading of industrial structures (Li, 2017). In this process, improving workers' quality has become a key factor in adapting to economic development. As a key economic center in Southwest China, Nanning City faces dual pressures of industrial structure adjustment and transformational upgrading. Against this backdrop, adult learners, as an essential part of the labor market, urgently need to enhance their willingness and quality of learning, which is of great significance for adapting to the challenges brought about by technological advancements.

1) Technological advancements have created a series of emerging industries and profoundly transformed traditional industries. These changes require workers to master traditional skills and possess new knowledge and technical capabilities (Chen & Hong, 2020). In Nanning City, with the rapid development of high-tech industries such as electronics, biomedicine, and new energy, workers must continually acquire new skills and knowledge to meet the demand for high-quality talent in these fields.

2) The adjustment and transformation of industrial structures imply that the demand structure of the labor market is also changing (Jones, 2016). Nanning City is transitioning from traditional manufacturing to services and high-tech industries. In this process, higher demands are placed on workers' innovative abilities, problem-solving skills, and lifelong learning capabilities. As a significant force in the labor market, the quality improvement of adult learners is directly related to the success of industrial transformation.

3) Technological progress brings challenges not only at the technical level but also includes changes in thinking and work patterns. Through continuous learning, adult learners should cultivate their innovative consciousness, critical thinking, and adaptability to remain competitive in the rapidly changing work environment (Blaschke, 2021). Enhancing their willingness and quality to learn helps them better adapt to these changes, thereby promoting the overall quality improvement of the labor market.

1.1.2 Job Market Competition and the Need for Continuing Education Among Adult Learners

With economic development and upgrading of Shan industrial structures, the demand for highly skilled talent continues to grow. Against this backdrop, competition in the job market is intensifying, especially for highly educated workers affected by policy adjustments in industries such as education and training, real estate, and internet platforms, which have increased the difficulty of finding employment. Currently, Nanning City is also facing the social issue of intensified job market competition. For instance, according to the “Guangxi Talent Network Talent Supply and Demand Analysis Report 2023”, the talent supply-demand ratio on the Guangxi Talent Network reached 2.45, meaning more than two job seekers compete for one position, indicating that job market pressure remains high (Guangxi Talent Network, 2023). “The Guangxi Zhuang Autonomous Region Human Resources Market Supply and Demand Situation Analysis Report for the Second Quarter of 2023” shows that the job-seeker ratio in Nanning's human resources market is 3.09, which means that for every 100 job seekers, there are over 300 job positions available. Although this data indicates a surplus of job vacancies, it also reflects the intense competition (Guangxi Zhuang Autonomous Region Department of Human Resources and Social Security, 2023). Furthermore, the total number of rural laborers from Nanning working outside their hometown is 1.8777 million, of which 1.1818 million are working within Guangxi, accounting for 62.94%. Although most of the workforce remains employed within the region, this also means that many laborers need to find suitable positions, which adds to the pressure on the job market (China Employment Network, 2023).

At the same time, Nanning City also faces issues with low wages and fierce competition among job seekers with lower education levels. According to the report on human resources from public employment service agencies in the Guangxi Zhuang Autonomous Region for the fourth quarter of 2023, the share of job seekers with education below junior high school has decreased, indicating a sluggish market for low-educated workers and increased competition in the job market (Guangxi Zhuang Autonomous Region Department of Human Resources and Social Security, 2024). In August 2022, the Nanning Human Resources Market established a "Hard-to-Employ" window to assist individuals facing employment difficulties (Nanning Municipal Human Resources and Social Security Bureau, 2022). In 2023, most of the hard-to-employ individuals who registered at the "Hard-to-Employ" window were older, had lower education levels, and lacked employable skills, showing their limited competitiveness in the job market. There are several reasons why job seekers with low education face challenges in finding work. On one side, they often encounter discrimination and prejudice from employers, who tend to prefer candidates with higher education, which puts low-educated job seekers at a disadvantage and makes it harder

for them to find desirable jobs. On the other side, middle-aged and older people (especially those over 35) experience greater difficulty when seeking reemployment. They often have limited awareness of policies and do not receive unemployment benefits from companies after being laid off, which adds to their financial strain as they look for new jobs.

Continuing education, as a supplement to formal schooling, can help job seekers, especially those with lower levels of education, better cope with the intense competition in the job market. For instance, continuing education can provide adult learners with skill training courses that include computer operation, foreign language learning, and professional technical training, helping low-educated job seekers acquire practical vocational skills and enhance their competitiveness in the job market (Khalikova, 2023). Continuing education offers career planning services to help low-educated job seekers understand their interests, strengths, and market demands, thereby formulating more informed and realistic career development paths. Continuing education institutions also provide employment information, including job fair details, job requirements, and industry trends, which helps job seekers stay up-to-date with market conditions and improve the targeted nature and success rate of their employment efforts. In summary, integrating continuing education resources and promoting continuing education activities can help Nanning City address the current tense employment situation, reduce regional unemployment rates, and enable more residents to find stable employment (Rasmussen & Lolle, 2022).

1.1.3 Chinese Government Actively Promotes Lifelong Education

In recent years, the Chinese government has been actively promoting lifelong education, aiming to construct a lifelong learning system that serves the entire population, enabling them to adapt to the rapidly changing demands of social development and economic growth. From a policy perspective, the Chinese government places a strong emphasis on the development of lifelong education. “China's Education Modernization 2035” clearly proposes the establishment of a modern education system that serves the lifelong learning of the entire population, and the importance of advancing lifelong education has been repeatedly emphasized in government work reports at all levels (Ministry of Education of the People's Republic of China, 2019). Additionally, the “Education Law of the People's Republic of China” has incorporated lifelong education into the national basic policy, further clarifying its legal status (People's Republic of China, 2021). In terms of integrating social resources, China focuses on optimizing and consolidating various educational and training resources. By constructing a widely covered, multi-level educational and training network and comprehensively utilizing social learning resources, cultural resources, and educational resources, the lifelong education system is made complete (Wang, 2018). To achieve this goal, the Ministry of Education in China has proposed in the “14th Five-Year Plan” to expand lifelong

education resources through multiple channels, meeting the diverse learning needs of different groups. Regarding the dissemination of concepts, China strives to create a social atmosphere of learning for all. For example, the President of the State Council, General Secretary Xi, has repeatedly emphasized the need to build a learning society where everyone can learn, everywhere can learn, and learning is possible at any time (Tang & Fan, 2022). To this end, the country vigorously promotes the concept of lifelong learning, raising public awareness of its importance through media promotion, organizing lectures, seminars, and other activities. At the same time, it is also suggested that Lifelong Education Activity Day or Lifelong Learning Activity Week be recognized and publicized to highlight activities related to lifelong education (Tang, 2018).

Nanning City, as one of China's capital cities, actively responds to the national call and strives to establish a lifelong education system within the city. In terms of policy formulation, Nanning City has established multiple policies and plans to support the development of lifelong education. For instance, the “Guangxi Education Quality Improvement and Revitalization Three-Year Action Plan (2021-2023)” emphasizes the need to enhance the system supporting lifelong learning for all, create a credit transfer system, and promote the development of community education pilot zones and demonstration areas. The “Nanning Preschool Education Development and Improvement Action Plan (2022-2025)” also highlights the importance of lifelong learning. Regarding system research, Nanning City promotes the integration of vocational education with general education, improves the quality of higher education, expands channels for continuing and lifelong education, and enhances the modern education system. Additionally, it has developed several lifelong learning brand projects at the autonomous region level, establishing multiple national community education pilot zones and autonomous region-level community education demonstration areas, further encouraging lifelong learning among residents. In terms of social practice, in 2015, Nanning City launched a lifelong learning public service platform that provides digital learning resources for citizens and built an intelligent platform enabling learning anytime and anywhere.

1.1.4 Public Vocational Colleges Need to Develop Continuing Education to Complete Reform

Adult learners are typically people who have left formal education, entered the workforce, and taken on adult responsibilities; they update their knowledge, broaden their skills, and improve their quality through ongoing education. Currently, the Chinese government, through various policies, requires Public Vocational Colleges in China to provide diverse continuing education services to society. For example, the “Vocational Education Quality Improvement and Excellence Action Plan (2020—2023),” published on the Chinese government’s website, clearly states that “vocational schools should strengthen their continuing education functions and carry out various

forms of continuing education for social groups." This indicates that Public Vocational Colleges play a vital role in continuing education, targeting not only workers, active-duty military personnel, and veterans but also migrant workers and those who have changed jobs, demonstrating the extensive coverage and deep involvement of Public Vocational Colleges in continuing education (Ministry of Education of China and Nine Other Departments, 2020). "The Opinions on Promoting the High-Quality Development of Modern Vocational Education" emphasizes the important role of vocational education in the national education system and human resource development, requiring Public Vocational Colleges to enhance their capacity to serve society through the development of continuing education.

For public vocational colleges, developing continuing education holds significant value. It provides adult learners with opportunities for lifelong learning and is a vital step for institutions to achieve educational modernization and foster a culture of learning. As a method of learning and growth tailored for adult learners, continuing education can effectively meet society's evolving talent needs and help public vocational colleges better serve their communities (Xi, 2018). By offering continuing education, public vocational colleges can broaden their educational offerings, improve the quality of instruction, and develop a larger pool of high-quality, skilled individuals with innovative ideas and practical skills—thus providing strong support for our country's economic and social development. The development of continuing education promotes collaborative innovation among vocational education, higher education, and ongoing professional development. This collaboration helps transform traditional educational models that target different groups separately, enabling diverse populations to achieve comprehensive growth through integrated development within collaborative innovation (Chen & Hong, 2020). Vocational education can supply training in production and life skills, along with practical experience. Meanwhile, higher education can nurture the qualities and abilities necessary for professional work, including awareness of and commitment to lifelong learning, supporting harmonious growth. Continuing education can enhance ongoing learning and self-improvement, thereby increasing vocational and social adaptability.

Furthermore, the development of continuing education contributes to the integration of pre-employment and post-employment training, improves the quality of citizens, refines the knowledge base of human resources, and better aligns with the needs of national economic growth. Creating an education system that supports lifelong learning for everyone addresses the educational needs of a diverse society, especially in adult education (Wang & Shi, 2024). Continuing education also focuses on adapting to the characteristics of adult learning, including learning goals, instructor requirements, teaching methods, content, and the challenges learners face, which helps serve adult learners more effectively, meet their learning needs, and foster their overall development.

1.2 Background

1.2.1 A Study on the Current Status of Vocational Colleges' Participation in Continuing Education

Status of International Vocational Colleges' Participation in Continuing Education Development

With the rapid growth of global economic integration and the knowledge economy, continuing education has gained widespread international attention. Many countries have developed continuing education programs to boost national competitiveness and support social progress (Güven, 2020). The current state of international continuing education exhibits qualities of diversity and maturity, with each country establishing its own distinctive continuing education system based on its historical traditions, economic structures, and social needs.

The current landscape of continuing education in the United States is diverse and widely attended. Today, over 23 million people participate in continuing education, with about 1 million new students enrolling each year. The U.S. system covers a broad range, from community colleges to higher education institutions (Li, 2023). Community colleges are essential for providing flexible learning options and supporting adult learners. Many universities also see continuing education as a vital part of educational modernization, giving it equal importance with undergraduate and graduate programs (Yamashita et al., 2019). Additionally, continuing education in the U.S. serves the general adult population and meets the training needs of professionals, such as dentists, who regularly take courses to maintain their licenses. These courses cover a variety of fields, including automotive repair, retirement planning, and computer skills (Zhang & Bai, 2022).

Continuing education development in European countries also has unique characteristics. In Germany, for example, understanding the population's learning needs and participation rates is crucial. According to 2018 data, 54% of adults aged 18-64 engage in non-formal education, 12% in formal education, and 45% in informal learning (Publishing, 2019). Within the German higher education system, continuing education is considered a core function of universities. Since 1976, the Basic Law of German Universities has mandated universities to provide continuing education and support ongoing professional development for their staff, rendering continuing education a legal obligation for universities (Zelinka et al., 2022).

The UK government actively promotes the “Lifelong Skills Guarantee” policy, aiming to ensure that adults have access to continuing education opportunities through systemic reform, thereby acquiring the skills needed in the workplace. This policy encompasses several related initiatives, including the “National Skills Fund” and the “Lifetime Loan Entitlement” (Doyle & Wang, 2023). The UK's Further Education (FE) system provides additional education beyond secondary school, allowing students to

transition into higher education or the workforce. Further education colleges offer courses at various levels, from secondary to advanced certificates, diplomas, and other vocational skill certifications. These colleges not only provide higher education credentials, such as Higher National Certificates (HNC) and Higher National Diplomas (HND), but also offer training for apprentices, most of which takes place in the workplace and is complemented by short-term study at the college.

The French government emphasizes adult continuing education, supporting its growth through laws and policies. For example, France was among the first countries to establish laws for continuing education, passing the “Continuing Education Organization Act” in 1971, which has been revised several times to address new needs. France's lifelong learning system also emphasizes the shared involvement of individuals, businesses, and government at all levels. It has also built a comprehensive legal protection system, notably a unique qualification certification mechanism that encourages lifelong learning. French vocational colleges actively participate in continuing education, develop curricula based on various training objectives, and issue diplomas and degrees as required by law.

At the EU level, continuing education plays a key role in promoting economic growth and social development. To support the expansion of continuing education across EU countries, the European Commission actively encourages adult education, releases action plans, and highlights the importance of lifelong learning (Ion & Vespan, 2018). The EU has also set a target for at least 60% of adults to participate in training each year by 2030 to address labor shortages and skill gaps (Zhao, 2015). For example, the EU.ACE consortium, comprising universities from several European nations, aims to foster cooperation in academic continuing education, deliver application-based training, and align with the Bologna Process to promote lifelong learning. This collaboration extends beyond academic institutions to include strong connections with small and medium-sized enterprises, enriching educational resources.

Developed countries such as Japan and South Korea are at the forefront of continuing education in Asia. Among them, the South Korean government has lowered enrollment barriers, allowing adults with more than three years of work experience or those who are 30 years old to enter universities to help them complete vocational education courses and enhance their employability. In addition, the South Korean Ministry of Education and the National Institute for Lifelong Education have established "adult-friendly universities" to enable universities to operate adult degree programs autonomously according to their own characteristics and societal needs (Xinhua News Agency, 2024).

Japan emphasizes lifelong learning as a key way to boost national strength and scientific progress. Since the idea of "lifelong education" was introduced in 1965, the Japanese government has supported it through laws and financial backing, making

continuing education accessible to all citizens. The country's system for ongoing education is broad, covering everything from general higher education to vocational training. For example, junior colleges run a five-year continuous vocational program, and graduates can earn an "associate degree" with options to advance by completing a two-year "specialized course" or transferring to the third year of a regular university (Li, 2024). Japan has also established new types of higher education institutions, such as specialized universities and junior colleges, to meet vocational training needs better.

Development History of Chinese Public Vocational Colleges' Participation in Continuing Education

The history of Chinese public vocational colleges' involvement in continuing education dates back to the 1980s. During China's economic and social reforms, continuing education was recognized as an academic discipline, and the China Adult Education Association was founded in 1984. The following year, Tsinghua University in Beijing established the first college dedicated to continuing education, marking the official start of continuing education in China (Yang, 2018).

Entering the 1990s, as higher vocational education developed, some higher public vocational colleges emerged from adult higher education institutions, such as workers' universities and management cadre colleges, thereby inheriting the qualities of continuing education. These schools had a historical background and organizational experience in continuing education, which laid the groundwork for the widespread involvement of public vocational colleges in continuing education in the future (Pan & Zhao, 2017).

Entering the 21st century, with the promotion of lifelong learning and advances in information technology, the importance of continuing education has become increasingly apparent. After 2000, national policies further supported the integrated development of vocational and continuing education. For example, the "National Outline for Medium and Long-Term Education Reform and Development (2010-2020)" proposed organizing and implementing "lifelong education system and mechanism construction pilot projects," emphasizing the significance of continuing education. Continuing education has become a vital pathway for combining higher education, vocational training, and ongoing studies, mainly at the associate degree level, with online education serving as the main format (Zhou, 2014).

In 2015, the Ministry of Education and the Ministry of Human Resources and Social Security jointly issued the "Opinions on Promoting public vocational colleges to Serve Economic Transformation and Upgrading and Carrying Out Employee Continuing Education for Industries and Enterprises," which proposed that by 2020, public vocational colleges nationwide would generally carry out employee continuing education for industries and enterprises, and the number of employees receiving

continuing education in public vocational colleges would reach more than 1.2 times the number of full-time students (Sun & Wang, 2016).

In 2016, public vocational colleges were officially recognized as the leading force in employee continuing education, emphasizing the combination of academic and non-academic education to promote widespread employee continuing education. Since then, the role of continuing education in higher public vocational colleges has been further strengthened, with the government and higher public vocational colleges collaborating to enhance the quality and scope of continuing education (Guo, 2000).

By 2017, continuing education in higher public vocational colleges had become increasingly important in enhancing the level of vocational education, serving regional economies, and increasing the social influence of public vocational colleges. At the same time, continuing education in higher public vocational colleges also faces several problems and challenges, including the lack of a mature and systematic training system (Dou & Chai, 2020).

In recent years, with the increasing national attention to continuing education, the continuing education services of higher public vocational colleges have presented new development opportunities. The 19th National Congress of the Communist Party of China proposed "prioritizing the development of educational affairs and managing continuing education well," indicating a broader development prospect for the continuing education services of higher public vocational colleges (Liu, 2018).

Overall, the development history of Chinese public vocational colleges' participation in continuing education has undergone a process from initiation, adjustment, and expansion to reform, with different primary development orientations in each period. This process has been influenced by the deep structural factors of the economic, political, and cultural systems, showing a strong characteristic of path dependence (Nie et al., 2021). In the future, with the continuous improvement of policies and the changing social demands, the role and function of Chinese public vocational colleges in continuing education will be further enhanced.

Current Development Status of Continuing Education in Public Vocational Colleges in Nanning City

The development of continuing education in Nanning City has received strong policy support. The Nanning Municipal Finance Bureau has actively promoted vocational education and increased its investment in this area. In 2024, the city's initial budget for vocational education was 1.171 billion yuan, a 6.39% year-on-year increase (Nanning Municipal People's Government Office, 2024). For example, Nanning City has taken the initiative to cooperate with international financial organizations and foreign governments, actively attracting and utilizing foreign loan funds to support the development of high-quality vocational education. Recently, by leveraging loans from the Asian Development Bank, KfW Bankengruppe, and the governments of Spain and

Israel, totaling about 692 million yuan, funds have been allocated to the software and hardware projects for the Xangshuihu Campus of Nanning Health School, Yongning Campus of Nanning Fourth Vocational and Technical School, Nanning Vocational and Technical College, and Nanning Technician College. These efforts have enhanced the city's vocational education scale and quality, advanced the growth of continuing education in public vocational colleges, and provided high-quality educational resources for adult learners (Nanning Municipal Finance Bureau, 2024).

The content and forms of continuing education in public vocational colleges in Nanning City are constantly being enriched and diversified. On one hand, Nanning City prioritizes the needs of adult learners for academic progress by increasing investment in adult college entrance exams and organizing public vocational colleges to offer courses specifically designed for adult students. For example, Nanning Vocational and Technical College offers a range of adult higher education courses, including Architectural Decoration Engineering Technology and Computer Network Technology, with flexible study options such as part-time and correspondence, catering to the diverse learning needs of various groups (Nanning Vocational and Technical College, 2023). On the other hand, Nanning City focuses on the personalized development needs of adult learners by establishing community education colleges within public vocational colleges, promoting the creation of community education schools by districts, streets, and communities that rely on public vocational colleges, and encouraging the integration of community education with vocational training. For instance, Nanning No. 1 Vocational and Technical School has launched various community training programs for residents, including cooking, etiquette, tea art, and computer skills, and has built a high-quality and distinctive community education team. Nanning Vocational and Technical College has introduced the "Voices Touching Hearts" community education training class for residents, offering courses that include vocal choir and other arts, as well as traditional culture classes like Chinese painting of flowers and birds and soft brush calligraphy, aimed at meeting the learning needs of different groups (Guangxi Civilization Network, 2023). Additionally, the school has opened adult academic education and training classes for the elderly, further enhancing participation and satisfaction in elderly education.

The participation rate and coverage of continuing education in Nanning City are also steadily increasing. For example, a survey of health technicians at Nanning Hospital shows that, although some personnel have not taken part in continuing medical education activities, the majority of health technicians are actively involved in continuing education, mainly choosing in-person classes and new methods and technologies as their primary learning modes (Nanning Maternal and Child Health Hospital, 2022). Additionally, the Nanning Municipal Finance Bureau has supported the daily operation and steady growth of vocational education by raising the per-student

public funding subsidy standard for secondary vocational education and fully implementing tuition waiver funding subsidies.

1.2.2 Research on the Issues of Adult Learners' Intention to Continue Learning

Continuing education, as a voluntary form of learning, aims to meet learners' diverse needs for career development, knowledge renewal, or personal interests, and participation is usually determined by the learners' desire to keep learning. In this study, adults who have left the traditional full-time education system and actively engage in various formal or informal, organized learning activities for different purposes are defined as "adult learners." These learners are the primary focus of continuing education in public vocational colleges and play a crucial role in building a lifelong learning system in society. Compared to traditional full-time students, adult learners have different learning needs, motivations, and life backgrounds, which means that the ways they develop and sustain their intention to learn also have unique features. Therefore, studying the intention to continue learning among adult learners in vocational college continuing education helps researchers better understand their learning behaviors and psychological needs, enabling public vocational colleges to improve their continuing education strategies and provide more targeted and effective educational services for adult learners.

However, many factors affect the maintenance and enhancement of the intention to continue learning among adult learners participating in vocational college continuing education, which are specifically elaborated below.

Research on the Intention to Continue Learning Among International Adult Learners

Adult learners from different countries face various challenges when participating in continuing education at public vocational colleges, which impact their ability to maintain and enhance their motivation to continue learning. For instance, research on adult literacy policy in Canada indicates that a considerable proportion of adult learners intend to continue learning but are unable to participate in continuing education courses (Elfert & Walker, 2020). The main factors hindering adult learners, as surveyed, include tuition fees (71%), living expenses during study (69%), time costs (62%), loans to afford tuition (56%), and family support (48%). Economic factors are crucial to the ongoing participation of Canadian adult learners in continuing education.

Krejcik and Grotlüschen (2020) discussed the relationship between the digital competencies (the abilities of adults to handle mathematical information and concepts, apply, interpret, and communicate) of adult learners in various countries and their participation in continuing education. The study found that adult learners with lower digital competencies invest more time and resources in learning than those with higher competencies, suggesting that an individual's digital competencies can also significantly impact their intention to continue learning. Furthermore, the study,

through comparative research methods, suggests significant differences in participation in adult continuing education across different countries and regions. For example, in Northern European countries or regions, the participation rate of adults with lower levels of education in continuing education is higher. At the same time, it is lower in South Korea, Southern Europe, and Eastern European countries. This phenomenon is due to the differences in the motivations of adult learners in Northern Europe and other regions, such as South Korea, to participate in continuing education. Therefore, it is known that education levels and learning motivations are also relevant factors affecting the intention to continue learning among international adult learners.

Gorges et al. (2013), using German universities as an example, analyzed the impact of learners' learning motivation on their intention to learn, based on self-determination theory and goal achievement theory, through empirical research. The study found that factors such as learners' achievement goals, self-efficacy, task value, and emotional memory can influence their motivation to learn. A strong learning motivation, in turn, enhances learners' intention to learn and encourages more significant investment in all aspects of learning activities.

Zhang and Zeng (2023) surveyed adult learners' participation in continuing education across different regions of the United States. The survey found that adult learners' intention to engage in lifelong learning is influenced by factors such as region, gender, and ethnicity. For example, in California, a highly developed state, the number and enthusiasm of adult learners participating in continuing education tend to be higher. This is linked to the state's diverse economy, plentiful educational resources, and a social culture that encourages lifelong learning. In contrast, in Mississippi, a less developed state, the intention of adult learners to pursue continual learning is lower. This is because limited job opportunities and fewer educational resources lead adults to prioritize work over learning in order to support their livelihoods.

Shinbo (2017) examined the learning status and needs of adult learners involved in lifelong learning in Japan, exploring how they evaluate their learning process and maintain their motivation to learn. The study's results indicate that the primary sources of motivation for Japanese adult learners are personal career growth and individual interests, and they tend to select learning content related to their jobs or personal development. At the same time, Japanese adult learners often struggle to keep their motivation for sustained learning due to issues with time management, work-life balance, and unmet academic achievement expectations.

In South Korea, a study examined the scores of 6,667 adult learners under 65 in the OECD International Survey of Adult Skills (Yoon, 2014). The study found that South Korean adult learners have the lowest continuous learning intention among OECD member countries, with an average score of 2.9 out of 5. It also revealed that the continuous learning intention of South Korean adult learners is related to age.

Among all samples, adult learners aged 25-34 scored the highest, and the trend of continuous learning intention decreased as learners' age increased. The study attributes the lack of firm learning intention among South Korean adult learners to long working hours and limited promotion opportunities, which make it challenging to foster greater learning motivation.

In summary, the factors affecting international adult learners' participation in continuing education at public vocational colleges are complex, involving economic, social, personal, and psychological aspects. Overall, economic burdens such as tuition fees and living costs are the primary barriers for adult learners, limiting their ability to engage in continuing education. At the same time, time commitments and personal responsibilities, such as family and work duties, also play significant roles in their motivation to learn. The research also shows that an individual's digital skills and educational background greatly influence their desire to keep learning; adult learners with lower skills or educational levels may face greater challenges. Moreover, the strength of learning motivation, encompassing achievement goals, self-efficacy, task value, and emotional connection, is crucial for enhancing their motivation to learn. In general, the decision to pursue further education among international adult learners is shaped by various complex, interacting factors, which call for educational policymakers and institutions to take a comprehensive approach to create a more supportive environment for adult learners' participation and ongoing learning.

Research on the Intention to Continue Learning Among Chinese Adult Learners

Currently, continuing education in China is experiencing significant growth, and the concept of lifelong learning is gaining traction throughout society. Building a learning society has become a key strategic goal in China. In this context, the topic of adult learners' willingness to continue learning has also gained the interest of scholars. The current research within China's academic community on this subject mainly centers on the following aspects:

Research on the current status of adult learners' intentions to continue learning. Cheng and Zhou (2016) conducted a questionnaire survey on the continuous learning intentions, self-efficacy, and learning burnout of 894 adults in Jinjiang District, Chengdu, China. The survey showed that although 68% of adult learners were willing to continue learning, only 45% engaged in learning activities. Most of these adults' continuing education was based on self-directed learning, and the percentage of adult learners entering public vocational colleges or other continuing education institutions was only 13% of the total sample. The study found that this phenomenon results from the fragmented nature of adult learners' study time compared to that of traditional full-time students, as self-directed learning allows learners to schedule their study time at their discretion. Therefore, the proportion of adult learners entering institutions for

concentrated learning remains low. Xiao (2021) also researched the continuous learning behaviors and intentions of adult learners in Heilongjiang Province. The study found that although a higher proportion of adult learners opt for self-directed learning over concentrated learning, the duration of persistence in self-directed learning is shorter than in concentrated learning. This indicates that adult learners intend to continue learning during structured, concentrated sessions.

Research on the Individual Differences in the Intention to Continue Learning Among Adult Learners: Liu (2019) noted that female learners generally have a higher intention to continue learning than males, and this gender difference may be related to societal expectations of their roles. The study, focusing on adult learners in Shanghai, found that an increasing number of women in Shanghai are participating in the workforce and public life, and their desire to improve their skills and knowledge may be stronger. Furthermore, women's multiple roles in the family and society also motivate them to prioritize lifelong learning and self-improvement. Wang (2021) focused on the impact of adult learners' educational levels on their intention to keep learning. The study found that learners with higher educational levels tend to set clearer goals for personal growth and career advancement, which boosts their motivation to learn and helps sustain their commitment. Additionally, Zhou (2020) examined the relationship between marital status and the intention to continue learning among adult learners. Their research found that married adult learners generally have a lower intention to pursue further education than unmarried or single learners. The primary reason for this difference is that married adults must balance family and work responsibilities, which limits the time and energy they can dedicate to learning.

Research on Regional Differences in the Intention to Continue Learning Among Adult Learners: Zhang et al. (2021) revealed significant differences between the eastern coastal regions and the central and western regions. The study revealed that adult learners in the eastern coastal regions achieved higher scores in learning intentions than those in the central and western regions, with scores of 3.9 and 3.3, respectively. This disparity reflects the uneven distribution of educational resources, economic development levels, and cultural concepts across different regions in China, which weakens the learning intentions of adult learners in the central and western regions. Shen et al. (2018) focused on the learning intentions of adult learners in the western regions. The study found that although the overall learning intentions of adult learners in the western regions, represented by Shaanxi Province, were relatively low, the intentions were relatively high in specific fields such as agricultural technology and e-commerce. The study highlighted that this difference may be attributed to local government support policies, market demand, and learners' expectations for enhancing the quality of life.

Research on Factors Influencing the Intention to Continue Learning Among Adult Learners: Liu (2019) emphasized the important role of economic factors in the ongoing learning process of adults. Through a questionnaire survey of 563 adult learners, the study found that financial burden is the main obstacle to continued learning, with 71% of interviewees stating that tuition fees significantly affect their learning intentions. The study highlights the need to reduce educational costs and offer financial support to encourage adults to keep learning. From a psychological perspective, Shen et al. (2018) examined how self-efficacy and learning motivation affect adults' intentions to continue learning. The research revealed that adults with high self-efficacy are more likely to pursue ongoing education, and having a clear learning motivation is also key to maintaining learning habits.

In summary, the factors influencing the intention to continue learning among Chinese adult learners are also complex, covering economic, social, personal, and psychological aspects. There are specific differences in the factors affecting the continuous learning intentions of adult learners between international contexts and China. For instance, the economic burden's impact on international adult learners is more significant than on Chinese adult learners. This is because the resources and forms of continuing education in China are more plentiful, and costs are lower, resulting in reduced economic barriers for adults participating in continuing education compared to other countries. Conversely, the disposable leisure time available to Chinese adult learners is generally less than that of international adults, especially those in Europe and America. This means that even if Chinese adult learners have the financial capacity to continue their education, they may be limited by time. Additionally, differences in traditional culture can also influence adult learners' intentions for ongoing education. For example, Chinese adult learners often emphasize the importance of family support and may prioritize family responsibilities over continuing education. Lastly, Chinese adult learners exhibit distinct trends in continuing education compared to international adult learners, particularly in terms of gender, ethnicity, and age.

Research on the Intention to Continue Learning Among Adult Learners in Nanning City

As the capital of the Guangxi Zhuang Autonomous Region in China, Nanning City has actively responded to the national goal of building a learning society in recent years. It has been successful in developing continuing education within the city. Concerning the involvement of public vocational colleges in continuing education, Nanning's public vocational colleges have partnered with local communities to deepen the "community-vocational integration" model, offering a variety of continuing education options, including both academic and non-academic formats. By 2024, the Nanning City Education Bureau, in collaboration with public vocational colleges, businesses, and

social organizations, will have established 261 community education colleges, some of which are part of the national community education experimental zones. Based on these efforts, Nanning's continuing education is considered representative of China, especially in the southwestern region. Nonetheless, a gap remains in academic research on the lifelong learning intentions of adult learners in Nanning City, as studies focusing specifically on adult learners in Nanning are limited.

Nanning City is a vital area where the Zhuang ethnic group and several other ethnic minorities reside, and this diversity in ethnic makeup provides adult learners in Nanning with unique characteristics in continuing education. On the one hand, the cultural traditions and customs of different ethnic groups in Nanning vary, which in turn influences the learning needs of adult learners. For example, Zhuang learners may be interested in content related to the Zhuang language, history, and arts. This cultural diversity also requires educators to consider the cultural backgrounds of learners from various ethnicities when designing learning programs, thus offering more diverse and relevant content. Furthermore, the multi-ethnic environment in Nanning City leads adult learners to use both Mandarin and their ethnic languages for communication. This linguistic diversity presents challenges for learning methods. Educators must consider the language skills of learners from diverse linguistic backgrounds to ensure that all participants can engage effectively in learning activities. For instance, numerous studies have shown that many communities in Nanning have a large population of migrant workers and a phenomenon of multi-ethnic cohabitation. This makes the language situation within communities very complex. The diversity of languages presents challenges for community continuing education, as it prevents educators from using a single ethnic language or regional dialect for teaching and also makes it difficult for residents who are not fluent in Mandarin to participate in continuing education (Nanning Social Sciences Academy Research Group, 2020).

In addition to ethnic diversity, adult learners in Nanning City face unique economic conditions. As a southwestern border province of China, the Guangxi Zhuang Autonomous Region exhibits a significant economic development gap compared to central and eastern regions. Besides a few prefecture-level cities, such as Nanning, other urban areas have weaker economic capabilities, leading many rural and township residents to migrate to cities, as seen in Nanning (Chen, 2023). The education levels of this migrant population are relatively low, and to stay competitive in the urban job market, most are willing to pursue further education to learn new skills. However, in reality, most lack the time or money for continuing education, which forces them into physically demanding, labor-intensive jobs in the city, further limiting their chances of participating in ongoing education and making it hard for them to develop and sustain a desire to keep learning.

Regarding economically better-off adult learners in Nanning City, some pursue

continuing education to improve their professional knowledge and advance their careers. Their motivation for lifelong learning is closely tied to their career development plans. When they find it difficult to get a job promotion through continuing education, their desire to keep learning weakens or even disappears. Additionally, some adult learners participate in continuing education out of personal interest, such as through classes offered by community colleges or various institutions to expand their hobbies. The consistency of their learning behavior is entirely random and unstable, with many learners maintaining interest for only 1-2 semesters, and their motivation to continue learning is significantly influenced by various factors (Zhou & Huang, 2019). In summary, for residents with better economic conditions in Nanning City, the main reason that prevents them from staying motivated to participate in continuing education is the lack of job opportunities and limited diversity of positions in Nanning City, making it hard for residents to advance or expand their career development paths by learning additional skills. Therefore, it is not easy to stimulate their intention to keep learning.

1.2.3 Preliminary Interview: Investigation of Factors Influencing Adult Learners' Intention to Continue Learning in Nanning

To identify the factors influencing adult learners' continuous learning intention (CLI), at the initial stage of this study, the researcher developed a Survey on Factors Influencing Adult Learners' Continuous Learning Intention (Preliminary Interview) (see Appendix) in line with the research objectives. Eight adult learners in Nanning were selected to participate in semi-structured interviews, aiming to understand the interviewees' reasons for participating in continuing education at public vocational colleges, their personal experiences during the learning process, and their future learning plans. Special focus was placed on the differences in continuous learning intention among different groups.

Interview Sample Selection

In terms of interviewee selection, this study took five representative public vocational colleges in Nanning that offer continuing education (Nanning Vocational and Technical College, Guangxi Construction Vocational and Technical College, Guangxi Transportation Vocational and Technical College, Guangxi Vocational and Technical College, and Guangxi Health Vocational and Technical College) as the sample sources. Adult learners were screened based on gender, age, duration of participation in continuing education, and the operational scale of public vocational colleges, with a final selection of 8 adult learners in Nanning for interviews.

The screening criteria were formulated for two core purposes: on one hand, to cover samples of adult learners from diverse backgrounds, thereby capturing potential influencing factors of continuous learning intention (CLI); on the other hand, to select groups with different durations of continuing education participation, which effectively avoids conclusion bias caused by sample homogenization and ensures that interview

responses can fully reflect the true intentions of adult learners in various contexts.

The specific screening process is outlined as follows:

Gender

To balance the potential impact of gender differences on learning needs and motivational intentions, this study adopted proportional gender sampling, selecting 4 female and 4 male interviewees respectively. This ensures that the learning intention characteristics of different genders are fully reflected.

Age

The research subjects of this study were "adult learners". According to China's legal definition of "adults", "being 18 years old or above" is the sole age threshold for sample selection. On this basis, the study refers to Donald E. Super's Career Development Theory to group samples by age, ensuring the selected interview samples are differentiated.

The reason for adopting Career Development Theory as the age screening criterion is that adult learners' continuous learning intention is highly bound to their career development needs. The theory precisely reveals the core developmental tasks and demand characteristics of adults at different age stages. The specific grouping is as follows:

Exploration Stage (18-24 years old): Core needs focus on career direction exploration and basic skill accumulation; learning intention is mostly derived from the demand to "clarify career paths".

Establishment Stage (25-44 years old): Core needs center on career promotion and ability improvement; learning intention is mostly derived from the rigid demand to "break through career bottlenecks", with the highest intensity of intention.

Maintenance Stage (45-64 years old): Core needs involve career stability and skill renewal; learning intention is mostly derived from the defensive demand to "adapt to industry changes", with moderate intensity of intention.

Decline Stage (65 years old and above): Core needs include interest satisfaction and social participation; learning intention is mostly derived from the autonomous demand to "enrich life", with individual differences in intention intensity.

This theoretical grouping can accurately capture the impact of "differences in career development needs" on continuous learning intention, avoiding logical fragmentation caused by simple numerical age division, and making the sample grouping more aligned with the core research theme of "influencing factors of continuous learning intention".

In addition, the number of samples selected from each age group across the participating colleges was not evenly distributed. Instead, it was screened according to the actual age distribution ratio of continuing education students in public vocational colleges, ensuring consistency between the sample structure and the overall student

structure. The results of age-based sample screening are shown in Table 1.1.

Table 1.1 Respondent Age Group Distribution

Career Development Theory		Interview Age Grouping	Sample Size
Exploration phase	15-24 years old	18-24 years old	1
Establishment phase	25-44 years old	25-44 years old	3
Maintenance phase	45-64 years old	45-64 years old	3
Maintenance phase	Over 65 years old	Over 65 years old	1

Source: Created by Researcher

Duration of Participation in Continuing Education: This study selected adult learners who have been enrolled for at least one year as the interview sample to ensure that the interviewees have considerable experience with the continuing education programs offered by public vocational colleges.

Scale of Public Vocational College Operations: Due to differences in the size of continuing education programs across the sample colleges, this study chose interviewees based on the college's size: Nanning Vocational and Technical College (3 participants), Guangxi Construction Vocational and Technical College (1 participant), Guangxi Transportation Vocational and Technical College (2 participants), Guangxi Vocational and Technical College (1 participant), Guangxi Health Vocational and Technical College (1 participant).

Ultimately, this study employed quota sampling to select interview samples. Table 1.2 shows the characteristics of the interviewees.

Table 1.2 Interviewee Information

Number	Gender	Age	Institution
A	Female	20	Nanning Vocational and Technical College
B	Male	34	Nanning Vocational and Technical College
C	Male	51	Guangxi Construction Vocational and Technical College
D	Female	40	Guangxi Transportation Vocational and Technical College
E	Female	36	Guangxi Transportation Vocational and Technical College
F	Male	70	Nanning Vocational and Technical College
G	Female	46	Guangxi Health Vocational and Technical College
H	Male	53	Guangxi Vocational and Technical College

Source: Created by Researcher

Interview Record

This interview is semi-structured, with the researcher establishing the interview framework and conducting additional in-depth questions based on the respondent's answers. All participants took part in the study titled “Investigation of Factors Influencing Adult Learners' Intention to Continue Learning.” The researcher conducted video interviews using free online meeting software, each lasting 20-30 minutes. With the interviewees' consent, the researcher used the software's recording function to record the interview process and its audio processing feature to transcribe and edit the interview content. To protect the interviewees' privacy, responses were presented anonymously, and all interview data were used with the knowledge and permission of the participants.

The interview results are shown in Table 1.3.

Table 1.3 Interview Results

Participant	Theme 1-4	Keyword Extraction
A	1 Improve educational qualifications to obtain better job opportunities. Friends' successful academic advancement has boosted confidence.	Employment Opportunities, Alternative Experience
	2 The tuition and examination fees are somewhat high, and I cannot afford them on my own, so I have to take out a loan.	Economic Cost
	3 My secondary vocational school diploma lacks competitiveness in the job market, so I must continue my education to enhance my career prospects.	Social Impact
	4 My family and friends encourage me to participate in continuing education activities, and the school also provides me with resources to help me understand how to advance in my studies and apply for student loans smoothly.	Emotional Support, Informational Support
B	1 After being laid off, I want to re-enter the workforce by learning new skills.	Employment Opportunities
	2 Some courses lack practical application, and applying the knowledge to real-world work requires a significant amount of time.	Time Cost

Participant	Theme 1-4		Keyword Extraction
	3	My family suggested that I look for a job directly, but I understand my situation, so I decided to study first to enhance my competitiveness before seeking employment.	Expectations of Others
	4	Gaining new knowledge in my studies satisfies me and makes me feel that my overall abilities have improved.	Successful Experience
C	1	I want to develop a side business and earn more income by learning new knowledge.	Job Promotion
	2	It is not easy to coordinate work and study time, and participating in continuing education has cost me the opportunity for leisure.	Time Cost, Opportunity Cost
	3	Seeing friends successfully develop a side business through continuing education dramatically motivates me to try learning.	Alternative Experience, Social Impact
	4	Continuing my studies has not only helped me start a side business but also improved my performance in my main job.	Successful Experience
D	1	I want to obtain a professional qualification certificate through continuing education to advance my career.	Job Promotion
	2	Lack of study time; some courses are complex and challenging to understand.	Time Cost, Emotional Cost
	3	My colleagues around me have all obtained their qualification certificates, so I also need to get one through learning.	Alternative Experience
	4	My family supports my participation in continuing education and provides me with financial assistance.	Emotional Support, Instrumental Support
E	1	As a homemaker, I believe that participating in continuing education can be helpful for parenting.	Personal Interest
	2	I am unsure how to apply the knowledge I have learned daily, and sometimes, studying exhausts me.	Emotional Cost

Participant	Theme 1-4		Keyword Extraction
	3	My family supports my participation in continuing education, and their opinions are critical to me.	Emotional Support
	4	Attending school helps me maintain a good emotional state and achieve a sense of accomplishment more easily.	Positive Emotion
F	1	I love traditional Chinese painting, and after seeing the promotion and organization of the Chinese painting interest class at my School, I decided to sign up.	Social Impact, Personal Interest
	2	The teaching process does not cater to the elderly, and I feel helpless when attending classes.	Emotional Cost
	3	My friend suggested I join an interest class, and now we are studying in the same class.	Expectations of Others
	4	Attending classes makes me happy; my family helps me register online and takes me to classes so I can continue my studies.	Positive Emotion; Instrumental Support; Informational Support
G	1	I am interested in the courses offered by the school, so I use my spare time to study.	Personal Interest
	2	The time spent commuting to and from school is long, and the tuition is relatively high.	Time Cost, Economic Cost
	3	There are numerous online promotions for continuing education, which have prompted me to explore and try them.	Social Impact
	4	The work I completed in class has been praised on social media, which makes me very proud, and therefore, I am willing to continue learning.	Successful Experience, Positive Emotion
H	1	After I became unemployed, my family persuaded me to learn new technologies in hopes of changing careers and securing a good job.	Employment Opportunities
	2	To have sufficient time to continue my	Time Cost,

Participant	Theme 1-4	Keyword Extraction
	education, I turned down some job opportunities.	Opportunity Cost
	3 My family hopes that I will acquire new skills through learning; otherwise, I might not participate in continuing education.	Expectations of Others
	4 My family has been encouraging me to pursue continuing education, and I also believe that ongoing learning can help me gain social recognition.	Emotional Support, Social Impact

Source: Created by Researcher

Preliminary Exploration of Key Variables

During the interview process, the most frequently mentioned terms by interviewees were "Time Cost" and "Social Impact," each appearing a total of 5 times. They were followed by "Expectations of Others" and "Emotional Support," each mentioned 4 times. Keywords mentioned 3 times include "Employment Opportunities," "Personal Interest," "Successful Experience," "Alternative Experience," "Positive Emotion," and "Emotional Cost." Keywords mentioned 2 times are "Job Promotion," "Economic Cost," "Instrumental Support," "Informational Support," and "Opportunity Cost." The specific details are shown in Table 1.4.

Table 1.4 Interview Key Word Frequency

Keyword	A	B	C	D	E	F	G	H	Total Frequency
Employment Opportunities	1	1						1	3
Job Promotion			1	1					2
Personal Interest					1	1	1		3
Social Impact	1		1			1	1	1	5
Expectations of Others		1				1		1	4
Emotional Support	1			1	1			1	4
Instrumental Support				1		1			2
Informational Support	1					1			2
Successful Experience		1	1				1		3
Alternative Experience	1		1	1					3
Positive Emotion					1	1	1		3
Time Cost		1	1	1			1	1	5
Economic Cost	1						1		2

Opportunity Cost	1			1	2
Emotional Cost		1	1	1	3

Source: Created by Researcher

The analysis of these preliminary findings identified several recurring themes and high-frequency keywords, laying the foundation for this study's conceptual framework.

Learning Motivation

High-frequency keywords: Employment Opportunities, Job Promotion, Personal Interest

These keywords describe the subjective reasons why interviewees participate in continuing education at public vocational colleges. These reasons include those related to personal benefits, such as career development (Wang & Fan, 2018), and those unrelated to personal benefits, like personal interest choices (Zhao, 2023). "Learning Motivation" is used here to summarize these reasons. According to Motivation Theory (MT), learning motivation is an individual's intrinsic psychological state that drives them to engage in learning activities and sustain learning behavior (Fuoad et al., 2022). Additionally, a positive correlation exists between learning motivation and academic achievement (Dang & Qi, 2022). Therefore, properly guiding students' achievement motivation is essential for enhancing academic performance.

Self-efficacy

High-frequency keywords: Successful Experience, Alternative Experience, Positive Emotion

These keywords describe the interviewees' confidence in reaching their continuing education goals, reflecting their self-assessment of their learning abilities (Shi et al., 2013). This confidence encourages them to keep their intention to continue learning. "Self-efficacy" is used here to summarize this aspect (Xu, 2017). According to Self-Efficacy Theory (SET), self-efficacy refers to an individual's belief in and confidence in their ability to complete specific tasks. It not only influences a person's behavior choices and effort but also affects their cognitive and emotional patterns during task completion (Zhang et al., 2020).

Social Support

High-frequency keywords: Emotional Support, Instrumental Support, Informational Support

These keywords describe the help and encouragement that interviewees receive during the process of continuing education. This support can be intangible and emotional (such as encouragement from family and friends) or tangible and material (such as financial support). The commonality is that they enhance the interviewees' willingness to continue learning (Jin, 2018). "Social Support" is used here to summarize

these forms of support. Social Support Theory (SST) emphasizes that social support can alleviate psychological stress and enhance social adaptability (Aycock, 2022).

Subjective Norms

High-frequency keywords: Social Impact, Expectations of Others

These keywords describe the external influences that interviewees perceive during the process of continuing education. These influences are neutral or positive, such as when some interviewees decide to participate in continuing education because their colleagues do so, and they subsequently choose to improve their skills through lifelong learning (Zhang, 2018). Since these neutral external influences cause changes in interviewees' learning behaviors, "Subjective Norms" is used here to summarize these influences. According to the Theory of Planned Behavior (TPB), subjective norms refer to the social pressure an individual feels when making a specific behavioral decision. This pressure typically comes from the expectations and perceptions of significant others or groups regarding the individual's behavior (Geng et al., 2021; Minton et al., 2018).

Learning Costs

High-frequency keywords: Time Cost, Economic Cost, Opportunity Cost, Emotional Cost

These keywords describe the costs interviewees face when participating in continuing education. The level of these costs not only influences interviewees' learning decisions (Zheng, 2014; Liu et al., 2016) but also affects their learning satisfaction (Liu et al., 2016). "Learning Costs" is used here to summarize these expenses. According to Cost-Benefit Theory, learning costs refer to the total amount of time, money, energy, and other resources that learners invest in the learning process, including both direct and indirect costs (Zheng, 2014).

In summary, some of the keywords that emerged in the interviews relate to the purposes of interviewees' ongoing learning, such as "Learning Motivation," "Social Support," and "Subjective Norms"; some encourage interviewees to keep learning, like "Self-efficacy"; and others may prevent them from continuing, such as "Learning Costs." The interview results show that various factors influence adult learners' intention to keep learning.

1.3 Research Problem

Nanning City in China is increasing its investment in continuing education, offering various learning resources for adult learners and working to build a lifelong education system in the region. As key stakeholders in the region's continuing education efforts, public vocational colleges should further improve the allocation of resources to provide adult learners with a positive educational experience, thereby encouraging their motivation to keep learning. Interviews show that many adult learners in Nanning currently want continuing education. However, they often encounter issues such as high

costs, difficulty turning learning into job skills, and the acquired knowledge not sparking their curiosity for further learning.

Based on the researcher's field investigation, the main causes of the problems are as follows:

1) Irrational allocation of educational resources. Some public vocational colleges have an unbalanced distribution of continuing education resources, resulting in a concentration of high-quality educational resources that are inaccessible to some adult learners, thereby increasing their learning costs.

2) Insufficient learning support services. Public vocational colleges often lack adequate learning support services for adult learners, including academic tutoring, psychological counseling, and career planning, which makes it difficult for learners to receive timely and practical assistance when facing difficulties.

3) Curriculum settings are disconnected from market needs. Public vocational colleges have not thoroughly studied market demands in designing their curricula, leading to some courses that do not align with actual job skill requirements and making it difficult to translate learning outcomes into practical skills. Furthermore, factors such as inadequate policy support from the Nanning municipal government for continuing education, low industry-education integration in public vocational colleges, and other influences affecting adult learners contribute to these issues.

To establish a lifelong education system, Nanning City should develop a continuing education framework in public vocational colleges that encourages adult learners' ongoing learning and addresses the current issues in continuing education activities. This study incorporated the learning characteristics and needs of adult learners to thoroughly examine the factors influencing their continuous learning intentions within vocational college programs. Based on this, a model for adult learners' continuous learning intention was created, helping public vocational colleges develop effective strategies to improve the quality of continuing education.

1.4 Research Questions

1) What is the current level of continuous learning intention among adult learners in Nanning City, China?

2) Which factors in the continuing education activities of public vocational colleges influence adult learners' continuous learning intention?

3) What empirically based model can be proposed to enhance adult learners' continuous learning intention in the continuing education activities of public vocational colleges?

4) Based on this model, what strategies can public vocational colleges adopt to improve the quality of their continuing education?

1.5 Research Objectives

- 1) To assess the level of continuous learning intention among adult learners in Nanning City, China.
- 2) To identify and analyze the relevant factors influencing adult learners' continuous learning intention in the continuing education activities of public vocational colleges.
- 3) To construct a model to enhance the continuous learning intention of adult learners in the continuing education activities of public vocational colleges.
- 4) Based on the research model, to provide strategies for public vocational colleges to improve the quality of their continuing education.

1.6 Significance of the Research

1) **Has a specific reference value for continuing education practice:** This study aims to develop a research framework to examine the impact of continuing education in public vocational colleges on adults' willingness to engage in lifelong learning. Preliminary analysis suggests it can serve as a useful reference for practitioners in continuing education. It will assist them in understanding the learning characteristics of adult learners and provide a foundation for designing future educational programs.

2) **Contributes to the exploration of adult learners' development:** The construction of this research framework aims to provide a possible perspective for adult learners' career development and personal growth. Exploring the impact of continuing education in public vocational colleges on the willingness to engage in continuous learning can provide valuable insights and support for adult learners to maintain professional competitiveness and social adaptability.

3) **Provides initial ideas for reforming vocational college education:** This study has a specific inspirational effect on improving continuing education curriculum arrangements in public vocational colleges. By preliminary analyzing the factors influencing adult learners' willingness to pursue lifelong learning, public vocational colleges can start to consider how to better meet adult learners' needs, offering ideas for reforming continuing education.

4) **Lays the foundation for enhancing adult learning research:** Exploring the factors that influence adults' willingness to continue learning can foster innovation and progress in adult education methods, making their formats more varied. By including variables like self-efficacy, learning motivation, social support, and subjective norms, this study broadens the research scope on what affects adults' willingness to keep learning. It helps educational managers gain a more complete understanding of adult learners' psychological and educational needs in continuing education. Building on existing findings in the adult learning field, this study aims to create a comprehensive

model for adult learning.

1.7 Scope of the Research

1.7.1 Scope of Area and Sample

1.7.1.1 Scope of Area

This study was conducted in Nanning, Guangxi Zhuang Autonomous Region, China. In selecting the research site, Nanning concurrently carries three national-level functional designations: “Core Hub of the New Western Land-Sea Corridor,” “Permanent Host City of the China–ASEAN Expo,” and “Nanning Area of the Guangxi Pilot Free Trade Zone,” generating an explosive talent gap in cross-border commerce, intelligent manufacturing, modern logistics, and biomedical industries. According to the Guangxi Talent Network Report 2023, Nanning’s job-seeker ratio reached 3.09, with 41.7 % of positions explicitly requiring continuing-education certificates or skills-upgrading credentials, driving vigorous regional educational development. In addition, the Nanning municipal government’s 14th Five-Year Plan for Building a Learning City sets the goal of a “15-minute continuing-education circle”: a three-tier network of “public vocational colleges—community colleges—enterprise learning centers” aligned with the rail-transit axis and covering a 30-minute commuting radius. Consequently, Nanning offers distinct advantages in both market demand and policy support for the study of adult learners’ participation in continuing education.

1.7.1.2 Scope of Sample

This study targeted adult learners enrolled in continuing-education programmes at five public vocational colleges located within Nanning City:

- 1) Nanning Vocational and Technical College
- 2) Guangxi Construction Vocational and Technical College
- 3) Guangxi Transportation Vocational and Technical College
- 4) Guangxi Vocational and Technical College
- 5) Guangxi Health Vocational and Technical College

The selection of these colleges followed three screening criteria to ensure representativeness and policy relevance:

Alignment with Local Policy Priorities

All five colleges are located within the “Lifelong-Education Demonstration Belt” designated by the Guangxi Education Quality Improvement and Revitalization Three-Year Action Plan and the Nanning 14th Five-Year Plan for Building a Learning City. They receive municipal continuing education subsidies and have priority access to the Lifelong Learning Credit Bank.

Complementary Institutional Strengths

The colleges offer distinct yet complementary continuing-education content:

1) Nanning Vocational and Technical College emphasises management, education, and arts for part-time learners.

2) Guangxi Construction and Guangxi Transportation Vocational and Technical Colleges focus on vocational-qualification certificates.

3) Guangxi Vocational and Technical College serves rural revitalization and senior community education.

4) Guangxi Health Vocational and Technical College specializes in continuing education in the healthcare industry.

Regional Accessibility

The five campuses cover Nanning's three major educational clusters—the central urban district, Wuxiang New Area, and Wuming Education Park—and are seamlessly connected to community and enterprise learning centres, fully realising the “15-minute continuing-education circle”.

1.7.2 Scope of Research Contents

This study focused on the current state of adult learners' continuous learning intention in Nanning, China, and thoroughly investigated the factors that influence their continuous learning intention. Additionally, the study examined how continuing education in public vocational colleges can enhance learners' continuous learning intentions and attempted to construct a model that effectively reflects adult learners' continuous learning intentions.

During the research process, this study was grounded in a series of well-established educational theories. It took into account a variety of influencing factors, including learners' internal psychological states, the social environment in which they are situated, and the various challenges they face during the learning process. These factors interacted with each other and jointly affected adult learners' continuous learning intention.

The study aimed to comprehensively analyze the impact mechanisms of these factors on adult learners' continuous learning intention and their interrelationships. By thoroughly examining these factors, this study aimed to provide theoretical support and practical guidance for public vocational colleges to optimize their continuing education services and enhance educational quality, thereby developing a scientific and practical model of adult learners' continuous learning intentions.

1.8 Definition of Terms

The definitions and sources of the relevant terms in this study are shown in Table 1.5.

Table 1.5 Definition of Terms

Term	Definition
Learning Motivation	Learning motivation refers to the intrinsic psychological state or tendency that drives adult learners to participate in continuing

Term	Definition
	education at public vocational colleges, maintain their learning behavior, and directs them towards learning goals.
Self-efficacy	Self-efficacy refers to adult learners' subjective judgments and evaluations of their ability to complete continuing education in public vocational colleges.
Social Support	Social support refers to the emotional, informational, material, and other forms of support that adult learners receive from family, friends, the community, or other members of their social network, which they use to cope with difficulties and challenges in the process of continuing education.
Subjective Norms	Subjective norm refers to the social pressure that adult learners feel when deciding to participate in continuing education at public vocational colleges. This pressure typically originates from the expectations and opinions of acquaintances, such as friends and family, regarding the learners' behavior.
Learning Costs	Learning cost refers to the total sum of time, money, energy, and other resources that learners invest in the process of participating in continuing education at public vocational colleges, including both direct and indirect costs.
Continuous Learning Intention	Continuous learning intention refers to the stable motivation and clear willingness of adult learners to proactively choose to continue participating in similar or related continuing education programs at the same public vocational college, based on their past learning experiences and personal needs, after completing phased continuing education at public vocational colleges (such as a single course, a single training program, or a stage of academic education).
Adult Learners	In this study, adult learners specifically refer to individuals aged 18 years and above who possess independent learning decision-making capabilities and are currently participating in or have previously participated in continuing education programs at public vocational colleges in Nanning. These programs include adult academic education, vocational skills training, community education, and elderly education, among others. The group encompasses on-the-job personnel, unemployed individuals, community residents, and the elderly, excluding regular full-time students (learners pursuing full-time academic education in general

Term	Definition
	vocational colleges).

Source: Created by Researcher



CHAPTER 2

LITERATURE REVIEW

2.1 Related Theories and Models

2.1.1 Learning Motivation Theory

The core connotation of Motivation Theory (MT) lies in revealing the psychological mechanisms and influencing factors that drive individuals to initiate, maintain, and regulate learning behaviors. Essentially, it is a systematic explanation of the core question of why and how individuals continue to learn, encompassing the interaction of multiple dimensions such as internal psychological needs, external environmental stimuli, cognitive processing processes, and individual differences. A key consensus of this theoretical system is emphasizing that learning motivation is not a single variable but a dynamic system jointly constructed by multiple factors including physiological needs, cognitive beliefs, and social contexts. Its core functions are to stimulate learning engagement, regulate the selection of learning strategies, and ultimately influence learning outcomes and lifelong learning tendencies. In terms of theoretical essence, Motivation Theory has always revolved around the dialectical relationship between intrinsic driving forces and external incentives. It not only focuses on individuals' innate need tendencies but also values the shaping of motivation patterns through acquired experiences and environmental interactions, while highlighting the mediating role of cognitive processes in motivation activation and maintenance.

The development process of Motivation Theory presents evolutionary characteristics from single-dimensional to multi-dimensional integration, from external description to internal mechanism exploration, and from theoretical construction to practical application, which can be roughly divided into three key stages. The early stage (early to mid-20th century) centered on behaviorism and instinct theory, focusing on the shaping effect of external stimuli on motivation: Skinner's (1953) Reinforcement Theory proposed that learning motivation stems from the connection reinforcement between behaviors and rewards or punishments. Positive reinforcement can enhance the tendency of behavioral repetition, while negative reinforcement improves motivation by avoiding punishments. Although this theory promoted the empiricalization of motivation research, it excessively neglected internal psychological processes (Petri & Govern, 2012). Meanwhile, Hull's (1943) Drive Theory linked motivation to the satisfaction of physiological needs, arguing that drive is an energy state triggered by physiological deficiencies, and the essence of learning is a process of drive reduction, laying the foundation for research on the biological basis of motivation. The middle stage (mid-20th century to early 21st century) shifted to the integration of cognitivism and humanism, focusing on internal psychological mechanisms: McClelland's (1961) Achievement Motivation Theory distinguished between two types of motivation—approach to success and avoidance of failure—revealing individuals' motivational differences in task selection; Bandura's (1977) Self-Efficacy Theory (SET) emphasized that individuals' subjective beliefs in their own abilities are the core driving

factors of motivation, and high self-efficacy promotes the selection of challenging tasks and persistence; Weiner's (1985) Attribution Theory pointed out that individuals' causal explanations for success or failure (such as ability, effort, luck, etc.) directly affect subsequent learning motivation; Deci and Ryan's (1985) Self-Determination Theory further integrated intrinsic and extrinsic motivation, proposing three basic psychological needs—autonomy, competence, and relatedness—providing a core framework for understanding the sustainability of motivation. The contemporary stage (since the 21st century) has shown a trend of multi-dimensional integration and contextualization. Theoretical research is no longer limited to a single dimension but emphasizes the interaction of individual factors, behavioral factors, and environmental factors (Pintrich, 2003). At the same time, more attention is paid to the adaptability of motivation in new scenarios such as lifelong learning and online education. For example, the mastery goals and performance goals distinguished by Goal Orientation Theory (Dweck, 2000) have been widely applied in personalized teaching and learning motivation intervention practices, reflecting the in-depth integration of theory and educational practice.

Motivation Theory is widely applied in continuing education and adult education both domestically and internationally. Relevant studies mostly revolve around core frameworks such as Self-Determination Theory, Attribution Theory, and Achievement Motivation Theory, combined with the characteristics of adult learners—such as strong career needs and fragmented time—providing empirical support for the optimization of educational models and the stimulation of learning motivation. In China's research field of continuing education and adult education, Self-Determination Theory within Motivation Theory is the most extensively and in-depth applied. Targeting adult learners' strong personalized needs and clear career orientation, Wang and Fan (2018) argued from the perspective of learning motivation theory that respecting adult learners' autonomy and involving them in decisions about learning goals and content can effectively cultivate their autonomous learning awareness and enhance their learning motivation. In the context of online continuing education, Geng et al.'s (2021) empirical study based on Self-Determination Theory indicated that intrinsic motivation has a significantly stronger predictive power for learning intention than extrinsic motivation has a significantly stronger predictive power for learning outcomes than extrinsic motivation. Learners' intrinsic value recognition of learning content can improve knowledge mastery by 37%, while social support from family and the workplace can indirectly strengthen learning persistence by enhancing a sense of belonging. Additionally, the application of Self-Efficacy Theory has achieved remarkable results. Granziera and Perera's (2019) research showed that teachers' self-efficacy, as an endogenous driving force, can positively predict their work engagement and investment in professional development. And effectively improve the negative tendency of some teachers to attribute developmental backwardness to the external environment.

In international studies, the European Educational Research Association, based on Motivation Theory, systematically reviewed adult social science education data from 23 countries covering 2005-2025. It confirmed that teaching interventions based on the three-dimensional needs of "autonomy-competence-relatedness" can increase adult learners' learning persistence by 42% and knowledge application conversion rate by 35%. Similar teaching interventions have also been confirmed to effectively enhance

student persistence in UK higher education (Gabi & Sharpe, 2021). Lee and Pang (2013) pointed out that motivation theory has proven effective in continuing education for adult learners, and its core mechanisms have universal applicability in organizational training and public continuing education programs. Research combining Attribution Theory and Achievement Motivation is also in-depth. Research on achievement goal orientation has shown that performance-oriented competitive learning environments tend to strengthen learners' attribution tendency of "fixed ability" and increase their withdrawal behavior (Dang & Qi, 2022). Dweck's (2000) self-theories research further indicated that adults' attribution patterns are rooted in their implicit theories of ability, and changing them requires sustained, systematic intervention. This suggests that adult education should reduce single academic ranking and instead adopt a multi-evaluation system.

2.1.2 Social Support Theory

The core connotation of Social Support Theory (SST) lies in revealing the protective effect of the interactive relationships between individuals and others or groups in the social environment on their psychological adaptation, behavioral performance, and developmental outcomes. Essentially, it is a systematic framework explaining how social connections buffer stress and promote well-being. The theory holds that social support is not a single-dimensional concept but a dynamic system encompassing multiple forms such as emotional support, instrumental support, informational support, and evaluative support. Its core mechanisms are reflected in two levels: first, the main effect model, where social support itself can directly promote individuals' physical and mental health and enhance their coping abilities, exerting a positive role regardless of whether they face stressful situations; second, the buffering effect model, which means when individuals encounter stressful events, social support can reduce the negative impact of stress on psychology and behavior by alleviating stress perception and providing coping resources. Additionally, the theory emphasizes that the effectiveness of social support depends on the match between the source of support, the content of support, and individual needs, and the perceived quality of support by individuals is often a better predictor of their developmental outcomes than the actual quantity of support obtained.

The development process of Social Support Theory presents evolutionary characteristics from concept definition to mechanism refinement and from a single perspective to multi-dimensional integration, which can be roughly divided into three key stages. The early germination stage (1950s to 1970s) focused on exploring the correlation between social relationships and health. American sociologist Cassel (1976) first systematically proposed that social support is a protective factor for individuals to cope with stress, and confirmed through epidemiological research that the lack of social support significantly increases individuals' risk of illness, laying an empirical foundation for the theory. Meanwhile, Caplan (1974), in his research in the field of mental health, defined social support as the emotional comfort and practical help individuals obtain from others, and emphasized its key role in psychological adaptation, promoting the initial formation of the theory. The middle formation stage (1980s) achieved the systematization of concepts and clarification of mechanisms. House (1981) first systematically divided social support into four core types, constructing the basic framework of the theory, which has become a classic classification standard in this field.

Cohen and Wills (1985) formally proposed the main effect model and the buffering effect model in their pioneering research, verifying the dual mechanism of social support on stress through meta-analysis, marking the formal formation of the theory. The later deepening stage (1990s to present) shows a trend of multi-dimensional integration and cross-field expansion. Researchers began to pay attention to the dynamics of social support and individual differences. For example, the research of Lakey and Cohen (2000) emphasized the mediating role of perceived support and support utilization, pointing out that individuals' subjective cognition of support is a better predictor of psychological well-being than objective support. In recent years, Social Support Theory has further integrated with fields such as positive psychology and organizational behavior. For instance, Hobfoll's (1989) Conservation of Resources Theory regards social support as a core personal resource, explaining its role in preventing job burnout and enhancing organizational commitment. Uchino's (2004) systematic review integrated neuroscientific and psychological evidence, revealing the biological mechanism by which social support affects physical health by regulating the function of the hypothalamic-pituitary-adrenal axis, expanding the application scenarios of the theory from mental health to education, the workplace, elderly care, and other fields.

In China's continuing education research field, the application of Social Support Theory (SST) focuses on the needs of specific groups and scenario adaptation, yielding abundant empirical results. Among them, targeting the important branch of elderly education, Hu (2019) found through research on elderly learners in Hebei Province that learning participation can significantly enhance the mental health and subjective well-being of the elderly and buffer the negative impacts of aging and stressful events by providing cognitive support, emotional support, and behavioral support. However, the current support faces issues such as a single provider and insufficient coverage, requiring the expansion of community and social support networks. In the scenario of rural distance continuing education, Bai et al. (2025) confirmed through an empirical analysis of 1,617 rural learners from a provincial open university that two types of social support—school support and local support—have a significant positive impact on learning outcomes. Specifically, school support has a stronger direct effect on academic performance, while local support is more conducive to improving comprehensive learning effectiveness, providing a basis for open universities to optimize the rural talent training support system. Regarding the overall support status of adult lifelong learning, a survey by Shen et al. (2018) on citizens' lifelong learning in Western China pointed out that adult learners generally face learning pressure, and both the level of social support seeking and the service capacity of support providers are weak. It is necessary to improve the overall effectiveness by strengthening support intensity, constructing personal social support networks, and building online community support.

In international studies, Social Support Theory is mostly deeply integrated with digital education scenarios, focusing on mechanism exploration and cross-situational verification. Endedijk and Hubers' (2016) cross-cultural research on work-related learning showed that emotional support and informational support from colleagues and mentors can effectively buffer the role conflict between work and learning and enhance learning persistence. In contrast, organizational-level instrumental support, such as flexible scheduling and learning subsidies, directly affects adults' willingness to

participate in continuing education. In the research on lifelong learning support frameworks, Cohen and Wills' (1985) classic study confirmed that both the main effect model and the buffering effect model of social support hold true, and this finding has been repeatedly validated in adult learning contexts. The synergy of a diverse support network can continuously improve adult learning participation and effectiveness, providing theoretical support for building an inclusive lifelong education system.

2.1.3 Cost-Benefit Theory

The core connotation of Cost-Benefit Theory (CBT) centers on rational decision-making, revealing the psychological mechanisms and decision-making logic through which individuals or organizations judge the feasibility and value of a behavior, decision, or project by weighing its expected benefits against input costs under the premise of limited resources. The core assumption of this theory is the premise of the rational economic person—decision-makers will conduct quantitative or qualitative evaluations of costs and benefits based on objective information. When expected benefits are greater than or equal to costs, they tend to adopt the behavior; otherwise, they will abandon it. Essentially, it is a decision-making framework pursuing utility maximization. Costs in the theory include direct inputs, opportunity costs, and implicit costs, while benefits cover explicit benefits and implicit benefits. The evaluation of costs and benefits is subjective, influenced by individual values, situational factors, and decision-making goals. Additionally, the theory emphasizes the dynamic nature of decision-making—with information updates and environmental changes, decision-makers will continuously adjust their perceptions of costs and benefits to optimize decision choices.

The development process of Cost-Benefit Theory presents evolutionary characteristics of permeation from a core economic framework to multiple disciplines and revision from pure rationality assumptions to bounded rationality, roughly divided into three key stages. The early germination stage (18th century to early 20th century) focused on constructing decision-making logic in the field of economics. Although British economist Adam Smith (1776) did not explicitly propose the concept of cost-benefit in "The Wealth of Nations," his analysis of economic behaviors such as division of labor and trade implied the core idea of maximizing benefits and minimizing costs, laying the ideological foundation for the theory. At the end of the 19th century, Marshall (1890) systematically expounded on the marginal utility theory in "Principles of Economics," proposing to optimize resource allocation by comparing marginal benefits and marginal costs, which promoted the formation of quantitative ideas for cost-benefit analysis. The middle formation stage (mid-20th century) achieved theoretical systematization and expansion of application scenarios. British economist Pigou (1920) applied cost-benefit analysis to the field of public policy, proposing to judge the rationality of government intervention by evaluating total social costs and total social benefits. Subsequently, Mishan (1988) first systematically constructed the analytical framework of Cost-Benefit Theory in "Cost-Benefit Analysis," clarifying the classification standards, evaluation methods, and decision-making thresholds of costs and benefits, marking the formal formation of the theory. Arrow et al. (1970) further standardized the principles and operational procedures for cost-benefit evaluation of public projects in "Guidelines for Cost-Benefit Analysis," strengthening the theory's practical guiding significance. The later deepening stage (late 20th century to present)

shows a trend of interdisciplinary integration and theoretical revision. With the involvement of disciplines such as psychology and sociology, scholars began to question the complete rationality assumption. Simon (1955) proposed the bounded rationality theory to revise it, pointing out that affected by cognitive limitations and incomplete information, decision-makers are unable to achieve absolute utility maximization and mostly pursue satisfactory solutions rather than optimal ones, enriching the theory's realistic explanatory power. In recent years, the theory has further permeated into fields such as education, health, and behavioral decision-making. For example, Becker (1964) applied it to human capital theory, proposing that the essence of educational investment decisions is the trade-off between learning costs and future benefits. Chen's (2019) research incorporated psychological benefits and implicit costs into the analytical framework of learning costs and benefits, promoting the theory's expansion from a purely economic perspective to a multi-dimensional perspective integrating economic, psychological, and social factors, making it one of the core decision-making theories shared by multiple disciplines such as economics, psychology, and public management.

Chinese scholars, based on Cost-Benefit Theory (CBT), have conducted empirical research across multiple scenarios, focusing on the composition of adult learners' learning costs and the correlation mechanism with their continuous learning intention. Targeting the context of distance continuing education, Zheng (2014) analyzed the realization path of cost-effectiveness in distance education from the perspective of learning theory, pointing out that the distance learning model can significantly reduce learners' overall learning costs compared with traditional face-to-face instruction. They found that the distance learning model can significantly reduce the direct and implicit costs of adult learners. Even after controlling for other variables, this cost advantage can still positively predict learners' continuous participation intention, while learning satisfaction does not decrease due to cost reduction. This verifies the logical chain that cost savings lead to increased perceived benefits, thereby enhancing continuous learning intention. In the field of continuing education for professional and technical personnel, Wang and Chen (2018) empirical study pointed out that adult learners' perceived learning costs are significantly negatively correlated with their continuous learning intention. Among them, the cost-sharing model where enterprises and employees jointly bear continuing education expenses can effectively improve the learning persistence of professional and technical personnel by reducing individual cost pressure and strengthening income expectations. This conclusion is highly consistent with the core assumption of Cost-Benefit Theory that the difference between benefits and costs determines decision-making tendencies. Additionally, Dai and Lu (2023) research on the trade-off between quality and cost in adult academic continuing education showed that some adult learners have weak continuous learning intention even when facing low direct costs, due to concerns about insufficient learning quality under the "easy entry and easy exit" model. This suggests that the evaluation of learning costs needs to be combined with income expectations, especially quality-related implicit benefits, to more comprehensively explain adults' learning decisions.

International studies mostly focus on the refined application of Cost-Benefit Theory, exploring the differentiated impacts of different types of learning costs on adult continuous learning intention. In the field of distance education economics, the Iron Triangle Model proposed by Daniel et al. (2009) provides a theoretical framework for

the relationship between costs and continuous learning intention. Their subsequent empirical research found that the opportunity cost of adult learners is a key variable affecting continuous learning intention. The marginal cost reduction of distance education through economies of scale can enhance learners' persistence by improving the cost-benefit ratio, a conclusion verified in the practices of open universities in multiple countries (Perraton, 2010). Targeting adult vocational continuing education, Columbaro and Monaghan's (2009) research focused on the moderating role of employer cognition on adult continuous learning intention. They found that if adult learners expect their continuing education qualifications to not be recognized by employers, their continuous participation intention will decrease even if the learning costs are low. In contrast, when there is a clear positive correlation between learning costs and career development benefits, continuous learning intention will significantly increase. In the research on the dynamic trade-off between costs and benefits, Figlio et al. (2013) tracked the learning behaviors of adult online learners and found that the negative impact of perceived time costs in the initial stage on continuous learning intention gradually weakens with skill improvement and enhanced self-efficacy during the learning process. This confirms that adult learners' evaluation of costs and benefits has the characteristics of dynamic adjustment, further enriching the application dimensions of Cost-Benefit Theory in adult continuous learning decision-making. Furthermore, Rumble's (2001) classic research found through long-term tracking that the per capita cost advantage of distance education remains valid when considering completion rates, and this stable cost-benefit advantage is an important support for adult learners to maintain long-term continuous learning intention.

2.2 Review of Constructs and Concepts Involved

2.2.1 Learning Motivation

Theoretical Origins and Conceptual Definition

Learning Motivation is related to Motivation Theory (MT). Early motivation theories, represented by Freud and Hull, focused on how instincts drive individuals to initiate behavior. As psychology evolved, more complex theories of motivation emerged in the mid-20th century. Maslow's Hierarchy of Needs (1943) categorizes human needs into seven levels, with self-actualization at the highest level, making a significant contribution to motivation research in humanistic psychology. Murray's Theory of Achievement Motivation (1938) posited that personality is composed of a series of needs, with the need for achievement driving individuals to pursue high goals and accomplish complex tasks. Moving into the latter half of the 20th century, motivation theories were further refined, giving rise to various new theoretical frameworks. For instance, Weiner's Attribution Theory (1972) explored how individuals attribute success or failure to internal or external factors, noting that these attributions affect individuals' motivation and behavior. Bandura's Self-Efficacy Theory (1977) emphasizes the importance of an individual's belief in their ability to complete specific tasks, driven by motivation and self-efficacy.

Additionally, Self-Determination Theory (Deci & Ryan, 1985) categorizes motivation into intrinsic and extrinsic, positing that intrinsic motivation is the most effective driving force for learning. This theory has been widely applied and validated in subsequent research.

Relevant Literature

Different schools of thought have varying understandings of Learning Motivation, but there is a standard agreement on one point: all learning activities are driven by Learning Motivation. Currently, mainstream Learning Motivation theories encompass behaviorism, Humanism, and Self-Worth Theory, among others. In particular, Goal Setting Theory proposed by American psychologist Locke has played a key role in promoting student motivation (Wang & Fan, 2018). This theory emphasizes the use of goals as a motivational means, transforming students' internal needs into a learning drive through the achievement of goals. It also requires students to continuously compare behavioral outcomes with goals and make necessary adjustments and corrections during the learning process to ensure the achievement of goals (Zhao, 2023). Some scholars, considering the impact of external factors, have explored the differences between students' self-oriented and socially oriented learning motivation, and research shows that there is no significant difference between these two orientations (Tao et al., 2019). Studies on adult learners have found a positive correlation between Learning Motivation and academic achievement; therefore, correctly guiding students' achievement motivation is crucial for improving academic performance (Dang & Qi, 2022). To encourage proactive learning in adult learners, it is necessary to cultivate and stimulate their Learning Motivation specifically. Currently, some adult learners struggle to maintain learning intentions and experience a lack of motivation, which negatively impacts their personal growth and career development. Therefore, in-depth research on the learning motivation of adult learners and analysis of its formation factors are of great significance for promoting the healthy development of continuing education (Fuoad et al., 2022).

2.2.2 Self-efficacy

Theoretical Origins and Conceptual Definition

The self-efficacy variable is derived from Bandura's Self-efficacy Theory (SET). This theory primarily focuses on an individual's beliefs and confidence in their ability to complete specific tasks, known as self-efficacy (Shi et al., 2013). Self-efficacy influences an individual's behavior choices, persistence, and effort, and affects the cognitive and emotional patterns during task execution. Specifically, self-efficacy refers to an individual's subjective judgment and evaluation of their ability to perform a particular achievement behavior successfully, and this judgment plays a significant role in influencing an individual's motivational drive (Xu, 2017). The level of self-efficacy can predict an individual's performance when facing challenges; individuals with high self-efficacy are often better equipped to cope with difficulties, while those with low self-efficacy may exhibit avoidance or give-up attitudes (Zhang et al., 2020).

Relevant Literature

Academic research on self-efficacy encompasses various aspects. Studies indicate that self-efficacy is a key factor influencing the learning motivation and behavior of adult learners. Learners with high self-efficacy are more likely to exhibit positive learning motivation, believe they can meet course requirements, and thus invest more time and energy in learning (Tang, 2017). Additionally, self-efficacy is closely related to the selection and use of learning strategies; learners with higher self-efficacy tend to choose tasks suitable to their abilities and demonstrate superior learning

methods and self-monitoring capabilities (Liu, 2021). Regarding the relationship between self-efficacy and learning achievement, research confirms that self-efficacy affects learning motivation and directly promotes the enhancement of learning achievement (Cai & Yang, 2019). Learners with high self-efficacy can maintain an optimistic attitude when encountering difficulties and setbacks, firmly believing they can overcome challenges and improve learning outcomes (Stajkovic et al., 2018).

Furthermore, students with stronger self-efficacy tend to perform better in self-monitoring their learning, which positively affects their goal orientation and academic performance (Xu, 2017). The role of self-efficacy in different learning environments has also received widespread attention. For instance, in online learning environments, self-efficacy is closely linked to learning performance; enhancing adult learners' online coping skills, reducing computer anxiety, and strengthening control over learning activities and behaviors can effectively improve their online learning self-efficacy (Yüce et al., 2024). Self-efficacy plays a key role in MOOCs, EFL teaching, and online learning during the COVID-19 pandemic (Wen & Zhu, 2021).

2.2.3 Social Support

Theoretical Origins and Conceptual Definition

The social support variable is associated with the concept of Social Support Theory (SST), which can be traced back to the research of 19th-century French sociologist Émile Durkheim. In his work "Suicide," he analyzed the relationship between an individual's social connections and suicidal tendencies. However, the formal application of social support as a scientific term began in the late 1960s to early 1970s when researchers started to explore the impact of life stress on physical and mental health and found that Social Support plays an important role in alleviating stress and promoting health (Jin, 2018). The development of Social Support Theory has gone through several key stages (Aycock, 2022). In the 1960s, Ross V. Speck introduced social network therapy theory in the United States, emphasizing the potential for mutual aid among family members and promoting the development of community support programs. In the 1970s, the concept of social support was introduced in psychiatric literature, and researchers began to use quantitative methods to explore the relationship between Social Support and mental health. Social Support Theory was further developed from the 1970s to the 1980s, with researchers focusing on how social support networks help individuals cope with environmental challenges and introducing the concepts of instrumental support and emotional support. During this period, Social Support Theory gradually expanded into various fields, including psychology, sociology, and education, becoming an important research paradigm in the social sciences (Li & Zheng, 2018). This study, synthesizing previous research findings, defines social support as "the emotional, material, and informational help and resources that individuals receive from family, friends, communities, or other members of social networks."

Relevant Literature

Social support is the material and emotional support that individuals receive from their social relationships, which can alleviate psychological stress and enhance social adaptability. Dahlem et al. (1991) categorized social support into family support, friend support, and other support. Family support refers to the emotional or financial

assistance provided by family members. High levels of friend support can alleviate feelings of loneliness and anxiety and improve an individual's social cognitive abilities. Other forms of support include assistance from leaders, neighbors, and teachers, among others. Brissette et al. (2002) believed that social support plays a more positive role in an individual's growth process and can better predict mental health status. Xu (2024) noted in his research that social support is a significant influence that individuals obtain through various social activities, which can alleviate psychological tension and anxiety. Yamada et al. (2020) summarized that social support consists of three aspects: objective support, subjective support, and the utilization of support. Since there are differences in the degree to which individuals utilize social support, the utilization of support is considered the third dimension of social support. Aycock (2022) defined social support as the bidirectional interaction between people (based on social interaction), social support as a force or factor, behavior, or process that promotes human development (based on the characteristics of social behavior), and social support is a social resource that is exchanged between individuals.

2.2.4 Subjective Norms

Theoretical Origins and Conceptual Definition

The variable of subjective norms is a key concept derived from Theory of Planned Behavior (TPB), along with two other concepts—attitude and perceived behavioral control—which together predict an individual's behavioral intention (Zhang, 2018). In Theory of Planned Behavior, subjective norms refer to the social pressure an individual feels when making a specific behavioral decision. This pressure typically originates from the expectations and perceptions of important others or groups regarding the individual's behavior, thus emphasizing the individual's perception of others' expectations and the motivation to comply with these expectations (Geng et al., 2021).

Relevant Literature

Current academic research on subjective norms focuses primarily on their influence on individuals. Researchers have found that the influence of subjective norms varies significantly across different cultural backgrounds. For instance, in individualistic cultures (such as the United States, Canada, and Western Europe), Subjective Norms place greater emphasis on personal independence and self-worth, and personal preferences and independent thinking often influence individuals' behaviors and decisions (Minton et al., 2018). In contrast, in collectivistic cultures (such as China, Japan, and Korea), subjective norms highlight group harmony and interdependence, and individuals' behaviors and decisions are more influenced by group expectations and social norms (Huang et al., 2014). Additionally, research indicates that the influence of subjective norms in different cultural backgrounds is also affected by age and educational background. For example, in high-density countries like China and Korea, the attitudes of the younger generation may have a greater impact on behavior due to different educational backgrounds. Rebellious attitudes may lead adolescents to make negative decisions when confronted with subjective norms (Minton et al., 2018).

2.2.5 Learning Costs

Theoretical Origins and Conceptual Definition

The variable of learning costs is related to Cost-Benefit Theory (CBT). CBT is an economic analysis tool used to assess the costs and benefits of a project or decision, determining whether it is worth investing in or implementing (Zheng, 2014). The core of this theory is to quantify all relevant costs and benefits, compare them, and thereby determine the rationality of a decision. For adult learners, when making decisions on "whether to participate in continuing education" or "whether to engage in continuous learning," an important basis of reference is the various costs they incur in the learning process (Liu et al., 2016). In cost-benefit analysis, costs associated with decisions encompass both direct costs (such as financial investment and time costs) and indirect costs (including opportunity costs and emotional costs) (Zhang, 2015). Therefore, in the context of continuing education, the learning costs for adult learners are defined as "the sum of time, money, energy, and other resources that learners invest in the learning process, including both direct and indirect costs" (Liu et al., 2016).

Relevant Literature

Current academic research on learning costs primarily focuses on its role in individual learning decisions. The level of learning costs and the quality of learning outcomes affect students' aversion to studying, while enhancing learning motivation and employing diverse teaching strategies can effectively reduce learning costs and simultaneously improve learning outcomes (Zheng, 2014). Learning Costs involve not only direct economic investments but also indirect investments, such as opportunity costs and time costs, which significantly impact the return on educational investment. Therefore, students should value knowledge acquisition and skill enhancement to increase their chances of obtaining satisfactory salaries and superior working conditions (Liu et al., 2016). As a developing learning model, online learning has also attracted researchers' attention regarding its cost issues. Studies have found that online learning can improve learning outcomes, but its effectiveness is influenced by various factors, including self-regulatory abilities, learning motivation, and the learning environment. Therefore, the design and implementation of online learning need to consider these elements to maximize cost-effectiveness (Zheng, 2014).

2.2.6 Continuous Learning Intention

Theoretical Origins and Conceptual Definition

Continuous learning intention refers to an individual's motivation and willingness to continue learning after completing a set task. In the context of education, the subjective tendency of learners to continue using educational and teaching tools is often referred to as Continuous Learning Intention (Krishnapillai et al., 2023). This intention includes not only the completion of current learning tasks but also the sustained involvement in future courses or learning projects. The concept of continuous learning intention can be traced back to ancient Greek philosophers such as Socrates, Plato, and Aristotle, who believed that learning should be a lifelong endeavor (Gu, 2018). Additionally, Islamic doctrine emphasizes the importance of continuous learning from birth to the end of one's life. In Chinese and East Asian cultures, Confucius's teaching that "life is finite, but learning is boundless" also advocates for proactive learning and

self-cultivation (Gu, 2019). In the West, Dewey, Lindeman, and Yacker, among others, proposed the modern systematic concept of lifelong learning, considering learning as a part of life. In the 1970s, Lifelong Learning Theory (LLT) gained widespread acceptance and became a central concept in educational policy (Liu, 2019).

Relevant Literature

Numerous theories support the study of individuals' continuous learning intentions. Numerous studies have investigated factors influencing continuous learning intentions within the framework of the Expectation-Confirmation Model. When examining online learning behaviors, researchers have found that attitude, expectation confirmation, learning satisfaction, and curiosity significantly influence online learners' intentions to continue learning. At the same time, perceived usefulness does not have a significant impact (Ren, 2021). Other studies have shown that attitude and perceived usefulness are important drivers of MOOC learners' continuous learning intentions (Pan et al., 2024). In the study of individual intrinsic motivation, researchers have found that self-efficacy and intrinsic motivation are key factors affecting continuous learning intentions. High self-efficacy helps enhance an individual's continuous learning intentions, while intrinsic motivation stems from personal interest in the learning content and the satisfaction derived from knowledge acquisition. Additionally, cognitive interest and self-efficacy have been found to have significant positive effects on continuous learning intentions. Finally, some studies combine the TAM and TPB models to analyze continuous learning intentions. For example, research has found that self-awareness significantly impacts the intention to continue using online learning, with perceived usefulness and perceived ease of use influencing this intention (Yin et al., 2024).

2.3 Relationship between Variables

2.3.1 Research on the Relationship Between Learning Motivation and Self-efficacy

In the field of educational psychology, the relationship between learning motivation and self-efficacy has always been a research hotspot. Learning motivation is an important intrinsic driving force that propels students to engage in learning activities. At the same time, self-efficacy refers to an individual's subjective judgment and evaluation of their ability to complete specific tasks. Research has shown that learning motivation has a significant positive impact on self-efficacy. The two interact with each other, jointly influencing students' learning behaviors and learning outcomes. Table 2.1 summarizes the main findings of relevant studies in recent years, presenting the explorations of different researchers on the relationship between learning motivation and self-efficacy.

Table 2.1 Positive Impact of Learning Motivation on Self-Efficacy

Author	Variable	Finding
Nuutila et al. (2020)	Self-efficacy, Learning Motivation	Learning interest and motivation reciprocally predict self-efficacy during task engagement; active participation in learning tasks reinforces learners' beliefs in their own abilities.

Author	Variable	Finding
Luo et al. (2023)	Learning Motivation, Self-efficacy	Among college students, the stronger the learning motivation, the higher the self-efficacy; motivation also directly enhances efficacy by increasing the sense of ability to overcome difficulties and the sense of ability to face setbacks.
Lee & Pang (2013)	Intrinsic Learning Motivation, Extrinsic Learning Motivation, Self-efficacy	Among adult learners in continuing education, intrinsic motivational factors contribute more strongly to self-efficacy and academic achievement than extrinsic factors.
Wu & Chen (2014)	Learning Motivation, Self-efficacy	Among elderly learners, learning motivation (especially social interaction and service motivation) has a significant positive relationship with self-efficacy.
Xie & Wan (2017)	Learning Motivation, Self-efficacy	In a bilingual learning context, the stronger the English learning motivation, the higher the learners' self-efficacy; motivation is an important predictor of efficacy.

Source: Created by Researcher

Table 2.1 summarizes the research findings of various scholars on the relationship between learning motivation and self-efficacy, consistently indicating that learning motivation has a significant positive impact on self-efficacy. Different types of motivation (such as intrinsic and extrinsic motivation) play varying roles in enhancing self-efficacy among different learner groups (such as college students, vocational learners, elderly learners, etc.), but overall, learning motivation directly or indirectly strengthens an individual's sense of self-efficacy by driving individuals to engage in learning activities and accumulating successful experiences. This influence has been verified across various learning contexts.

2.3.2 Research on the Relationship Between Self-efficacy and Continuous Learning Intention

A significant positive correlation exists between self-efficacy and Continuous learning intention. Self-efficacy refers to an individual's belief in their ability to complete a task and the likelihood of success, a belief that is particularly important when facing learning challenges. Research indicates that students with high self-efficacy are more likely to persist in learning activities and exhibit stronger learning motivation, as well as higher academic achievement. Relevant studies are shown in Table 2.2.

Table 2.2 Positive Impact of Self-efficacy on Continuous Learning Intention

Author	Variable	Finding
Luo et al. (2023)	Self-efficacy, Learning Motivation, Continuous	Self-efficacy positively predicts learning motivation, which in turn positively

Author	Variable	Finding
	Learning Intention	predicts continuous learning intention. The relationship between self-efficacy and learning motivation varies across disciplines and stages of learning.
Liu & Tan (2023)	Content Quality, Software Quality, Interactivity, Cognitive Interest, Self-efficacy, Continuous Learning Intention	In college students' data analysis courses, content quality, software quality, and interactivity serve as external stimuli, while cognitive interest and self-efficacy act as internal factors that jointly influence continuous learning intention.
Xu (2017)	Self-efficacy, Social Support, Continuous Learning Intention	Self-efficacy has a positive effect on continuous learning intention, with social support partially mediating the relationship between self-efficacy and continuous learning intention.
Warshawski (2022)	Academic Self-efficacy, Continuous Learning Intention, Social Support	Academic self-efficacy is positively correlated with continuous learning intention, and social support influences both self-efficacy and continuous learning intention.
Hu (2019)	Self-efficacy, Continuous Learning Intention	Self-efficacy is a key factor in elderly learners' continuous learning intention.
Khalilur et al. (2023)	Self-efficacy, Continuous Learning Intention	Optimizing the interactive mechanisms of online learning platforms can enhance learners' self-efficacy, thereby increasing their duration of use and continuous learning intention.

Source: Created by Researcher

Table 2.2 presents the positive correlation between self-efficacy and continuous learning intention. Research shows that students with high self-efficacy are more likely to continue participating in learning activities, and this relationship exists universally across different learning stages, subjects, and learning situations (such as college students' data analysis courses, online learning platforms, etc.). External stimuli (such as content quality, software quality, and interactivity) and internal factors (such as cognitive interest and social support) can both affect self-efficacy and thereby influence continuous learning intention, indicating that self-efficacy is a key mediating variable in continuous learning intention.

2.3.3 The Mediating Role of Self-efficacy in the Relationship between Learning Motivation and Continuous Learning Intention

In the exploration of the relationship between learning motivation and continuous learning intention, self-efficacy has been proven to play a significant mediating role. Specifically, when an individual initiates a learning activity driven by a particular motivational factor, their belief in their ability to effectively complete the activity (i.e., self-efficacy) is activated and subsequently modified. This self-efficacy, which has been tested and adjusted through the practical experience of the activity, further influences the individual's decision to continue investing learning resources in future contexts, that is, their continuous learning intention. Therefore, self-efficacy constitutes a mediating mechanism between learning motivation and continuous learning intention. It connects the process of stimulating learning motivation with the formation of continuous learning intention, explaining how initial motivation ultimately affects long-term learning intentions through an individual's perception of their own abilities. The relevant research results are presented in Table 2.3.

Table 2.3 Mediating Role of Self-Efficacy in the Relationship between Learning Motivation and Continuous Learning Intention

Author	Variable	Finding
Geng et al. (2021)	Learning Motivation, Self-efficacy, Continuous Learning Intention	Self-determined motivation enhances online learning intention through multiple mediating paths, including perceived behavioral control and attitude.
Fu (2019)	Learning Motivation, Self-efficacy, Continuous Learning Intention	Learning motivation indirectly affects continuous learning intention through the significant mediating effect of self-efficacy.
Lin & Wang (2012)	Intrinsic Motivation, Self-efficacy, Continuous Learning	Learners' continued intention to adopt e-learning systems is strengthened when task-technology fit is high, indicating that system

Author	Variable	Finding
	Intention	usability reinforces the motivation-intention path.
Sun et al. (2021)	Extrinsic Learning Motivation, Self-efficacy, Continuous Learning Intention	Perceived parental support as an extrinsic motivation affects STEAM continuous motivation through two pathways: self-efficacy and learning interest; the mediating effect of self-efficacy is significant.

Source: Created by Researcher

Table 2.3 focuses on the mediating role of self-efficacy in the relationship between learning motivation and continuous learning intention. Research indicates that learning motivation stimulates an individual's sense of self-efficacy, which, in turn, influences their continuous learning intention. Both intrinsic and extrinsic motivation can indirectly enhance continuous learning intention through the mediating path of self-efficacy, and the mediating effect shows varying degrees of influence under different situations (such as changes in platform technical threshold, parental support, etc.). This suggests that self-efficacy serves as a crucial bridge between learning motivation and continuous learning intention, and its mediating role in the learning process should not be overlooked.

2.3.4 Research on the Relationship Between Learning Motivation and Continuous Learning Intention

The interplay between learning motivation and continuous learning intention has always been a research hotspot in educational psychology. As the intrinsic driving force that propels individuals to engage in learning activities, learning motivation plays a crucial role in the formation and maintenance of continuous learning intention. Table 2.4 summarizes the main findings of relevant studies in recent years, presenting the explorations of different researchers on the relationship between learning motivation and continuous learning intention.

Table 2.4 Positive Impact of Learning Motivation on Continuous Learning Intention

Author	Variable	Finding
Wang (2019)	Intrinsic Learning Motivation, Extrinsic Learning Motivation, Continuous Learning Intention	Continuous Learning. Intrinsic learning motivation has a significantly stronger effect on continuous learning intention, whereas extrinsic learning motivation has a weaker effect.
Zhao et al. (2018).	Learning Motivation, Continuous Learning Intention	Learning motivation is positively correlated with continuous learning intention, and high learning motivation

Author	Variable	Finding
		helps maintain this intention.
Li and Li (2023)	Perceived Value, Learning Motivation, Continuous Learning Intention	Perceived value and learning motivation have a positive impact on continuous learning intention.
Fuoad et al. (2022).	Learning Motivation, Continuous Learning Intention	Learning motivation is a significant predictor of continuous learning intention, and this relationship holds across diverse cultural backgrounds.
Nuary et al. (2024)	Autonomy, Competence, Relatedness, Intrinsic Learning Motivation, Continuous Learning Intention	The satisfaction of needs for autonomy, competence, and relatedness enhances intrinsic learning motivation, which in turn increases continuous learning intention.
Dang and Qi (2022)	Educational Intervention Measures, Learning Motivation, Continuous Learning Intention	Educational intervention measures can enhance learning motivation, which in turn promotes continuous learning intention.

Source: Created by Researcher

Table 2.4 summarizes the positive correlation between learning motivation and continuous learning intention. Intrinsic learning motivation significantly enhances continuous learning intention, while the impact of extrinsic motivation is relatively weaker. The predictive role of learning motivation on continuous learning intention is consistent across different cultural backgrounds. Additionally, external factors such as perceived value and educational interventions enhance learning motivation, further promoting the formation and maintenance of continuous learning intention, highlighting the core driving role of learning motivation in the process of continuing learning.

2.3.5 Research on the Relationship Between Social Support and Continuous Learning Intention

Social support, which encompasses both spiritual and material assistance that individuals receive within their social environment, plays a crucial role in the formation and development of continuous learning intention. Table 2.5 provides an overview of how social support influences continuous learning intention.

Table 2.5 Positive Impact of Social Support on Continuous Learning Intention

Author	Variable	Finding
Liang (2018)	Social Support, Continuous Learning Intention	Social support has a significant positive impact on continuous learning intention; support from family, friends, or teachers helps

Author	Variable	Finding
		learners maintain a positive attitude toward learning.
Li et al. (2020)	Emotional Support, Instrumental Support, Self-efficacy, Continuous Learning Intention	Emotional support enhances self-efficacy, while instrumental support reduces perceived difficulty; both have a positive impact on continuous learning intention.
Ajiningtyasasih and Nugroho (2020)	Family and Relative Support, Marginalized Children's Continuous Learning Intention	Support from family and relatives is a key factor in enhancing the learning continuity of marginalized children.
Xu (2024)	Social Support, Continuous Learning Intention	Continuous social support helps learners establish stable study habits, thereby promoting the consolidation of continuous learning intention.
Bull et al. (2024).	Social Support, Goal Setting, Continuous Learning Intention	Social support influences goal setting, which in turn affects continuous learning intention.
Aycock (2022)	Social Support, Continuous Learning Intention	Enhancing social support can improve continuous learning intention.

Source: Created by Researcher

Table 2.5 discusses the positive impact of social support on continuous learning intention. Social support from various sources, such as family, friends, and teachers, whether emotional or instrumental, can promote the stability of continuous learning intention by enhancing individuals' sense of self-efficacy and reducing perceived difficulty. Social support can also strengthen learners' continuous learning intention by influencing goal setting and establishing stable learning habits, indicating that social support is an important external safeguard for the formation and development of continuous learning intention.

2.3.6 Research on the Relationship Between Subjective Norms and Continuous Learning Intention

In the formation of an individual's continuous learning intention, the perceived expectations and pressures from significant others or groups, known as subjective norms, have been shown to have a significant facilitative effect. Specifically, when an individual perceives that their family members, friends, colleagues, or community members support, encourage, or expect their continuous learning behavior, this perception translates into a social driving force. It enhances the individual's identification with learning activities, lowers their psychological threshold for abandoning learning, and may lead them to persist rather than retreat when facing learning difficulties. Therefore, subjective norms establish a positive correlation with continuous learning intention by shaping the individual's social identity, reducing

resistance to behavioral change, and positively influencing behavioral decisions. This indicates that a stronger perception of subjective norms is often associated with a higher continuous learning intention. The relevant research results are presented in Table 2.6.

Table 2.6 Positive Impact of Subjective Norms on Continuous Learning Intention

Author	Variable	Finding
Wang & Mao (2016)	Subjective Norms, Continuous Learning Intention	Based on the UTAUT model, social influence—the perceived expectations of teachers, peers, and significant others—significantly promotes learners' continuous use of MOOC platforms.
Minton et al. (2018).	Subjective Norms, Continuous Learning Intention	When individuals perceive that continuous learning is a social expectation and group norm, they are more likely to increase their continuous learning intention.
Yang et al. (2022)	Subjective Norms, Continuous Learning Intention	Social pressure theory indicates that perceived social expectations and norms shape individual behavioral tendencies, thereby reinforcing the intention to sustain learning behavior.
Geng et al. (2021)	Injunctive Norms, Descriptive Norms, Continuous Learning Intention	Cross-cultural comparisons reveal that the East Asian education system is more heavily influenced by teacher authority (injunctive norms). At the same time, the West places more emphasis on the influence of peer modeling (descriptive norms) on continuous learning intention.

Source: Created by Researcher

Table 2.6 illustrates the positive impact of subjective norms on promoting continuous learning intention. The perceived support and expectations from significant others or groups regarding an individual's continuous learning behavior, which constitute subjective norms, can enhance the individual's identification with learning activities and reduce the psychological threshold for giving up learning. This is achieved through pathways such as shaping social identity and activating reward mechanisms, thereby increasing continuous learning intention. Although the mechanisms of subjective norms vary across different cultural contexts, overall, a stronger perception of subjective norms is closely related to a higher continuous learning intention.

2.3.7 Research on the Relationship Between Learning Costs and Continuous Learning Intention

There is a close connection between learning costs and continuous learning intention. Learning costs not only include direct economic burdens such as tuition and textbook fees but also involve time, energy, and psychological investments. High learning costs often lead to financial pressure for students, which in turn affects their continuous learning intention. Table 2.7 presents the relevant research findings.

Table 2.7 Negative Impact of Learning Costs on Continuous Learning Intention

Author	Variable	Finding
Lin et al. (2023)	Psychological and Economic Factors, Perceived Educational Costs, Continuous Learning Intention	Psychological and economic factors influence the perception of educational costs, which in turn affect continuous learning intention; time investment and economic pressure weaken this intention.
Yang & Wu (2023).	Learning Costs, Continuous Learning Intention	Learning costs, including tuition, living expenses, and opportunity costs, weaken continuous learning intention among adult learners.
Yang (2017)	Learning Costs, continuous learning intention	Learning costs hurt continuous learning intention. Based on the ECM-ISC model, learning costs are a key factor affecting MOOC users' intention to continue using the platform.
Endedijk & Hubers (2016)	Learning Costs, Cultural Background, Continuous Learning Intention	High learning costs significantly reduce students' continuous learning intention, especially in East Asian cultural contexts.
Liu (2019)	Perceived Learning Costs, Psychological Needs of Self-Determination Theory, Continuous Learning Intention	The three basic psychological needs of Self-Determination Theory mediate the relationship between perceived learning costs and continuous learning intention. Enhancing autonomy and reducing external pressures can increase continuous learning intention.

Source: Created by Researcher

Table 2.7 examines the negative impact of learning costs on continuous learning intention. Learning costs include economic costs (such as tuition fees and living expenses), time costs, and the investment of effort. These cost factors can increase students' financial pressure and psychological burden, thereby weakening their continuous learning intention. The inhibitory effect of learning costs on continuous learning intention is particularly significant across different cultural contexts. Moreover, psychological needs as posited by Self-Determination Theory play a moderating role between the perception of learning costs and continuous learning intention. This suggests that reducing learning costs and enhancing learners' autonomy are crucial ways to enhance continuous learning intention.

2.4 Theoretical Framework

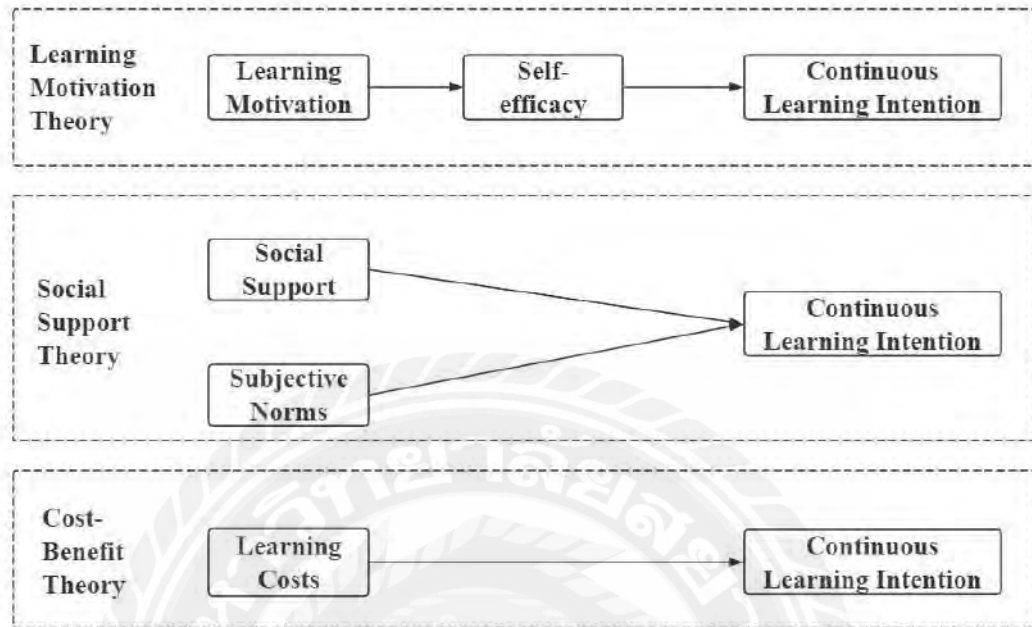


Figure 2.1 Theoretical Framework

Source: Created by Researcher

The theoretical framework of this study is supported by multidisciplinary theories, systematically integrating six core variables—learning motivation, self-efficacy, social support, subjective norms, learning costs, and continuous learning intention. It clarifies the theoretical origin and internal connections of each variable, providing a solid theoretical foundation for model construction (Figure 2.1).

In this framework, the independent variable level includes four core constructs, each based on different classic theoretical systems. The theoretical basis of learning motivation is Motivation Theory (MT), which emphasizes the driving role of internal psychological states in individuals' learning behaviors. It holds that learners' psychological tendencies such as interests, needs, and goals directly affect their initiative and persistence in participating in learning activities, serving as the core intrinsic driving force for stimulating continuous learning behaviors. Social support is theoretically supported by Social Support Theory (SST), which points out that emotional, material, and informational support obtained by individuals from social networks such as family, friends, and communities can alleviate stress during the learning process, enhance social adaptability, and thus provide external guarantees for continuous learning. Subjective norms are rooted in the Theory of Planned Behavior (TPB), which argues that when making learning decisions, individuals are influenced by the expectations and behaviors of significant others or groups. This social pressure shapes learners' behavioral intentions and exerts a positive driving effect on continuous learning intention. The theoretical basis of learning costs is Cost-Benefit Theory (CBT), which holds that various resources invested by learners in the learning process, such as time, money, and energy, will affect their learning decisions through cost-benefit trade-offs. Excessively high learning costs will inhibit continuous learning intention.

The aforementioned theories complement each other and are organically integrated, jointly forming the theoretical support system of this study. They not only clarify the theoretical origin of each variable but also provide a scientific basis for proposing hypotheses on the relationships between variables, ensuring the theoretical rigor and rationality of the research model.

2.5 Conceptual Framework

This study aims to explore the continuous learning intentions of adult learners in Nanning City, China, within the context of continuing education in vocational colleges, to understand the factors that influence these intentions, and to identify strategies to optimize continuing education in vocational colleges. The establishment of the research conceptual framework is as follows:

1) Qualitative research methods were used through interviews to analyze the current five variables affecting adult learners' participation in continuing education: Learning Motivation, Self-efficacy, Social Support, Subjective Norms, and Learning Costs.

2) Reviewing literature research methods, the relationships between each variable and the relationship between each variable and the dependent variable, continuous learning intention, were analyzed.

3) This study constructed a structural equation model to identify the influence mechanism of various variables on continuous learning intention, to find effective mechanisms for enhancing adult learners' continuous learning intention, and to provide adequate references for vocational colleges to optimize their continuing education.

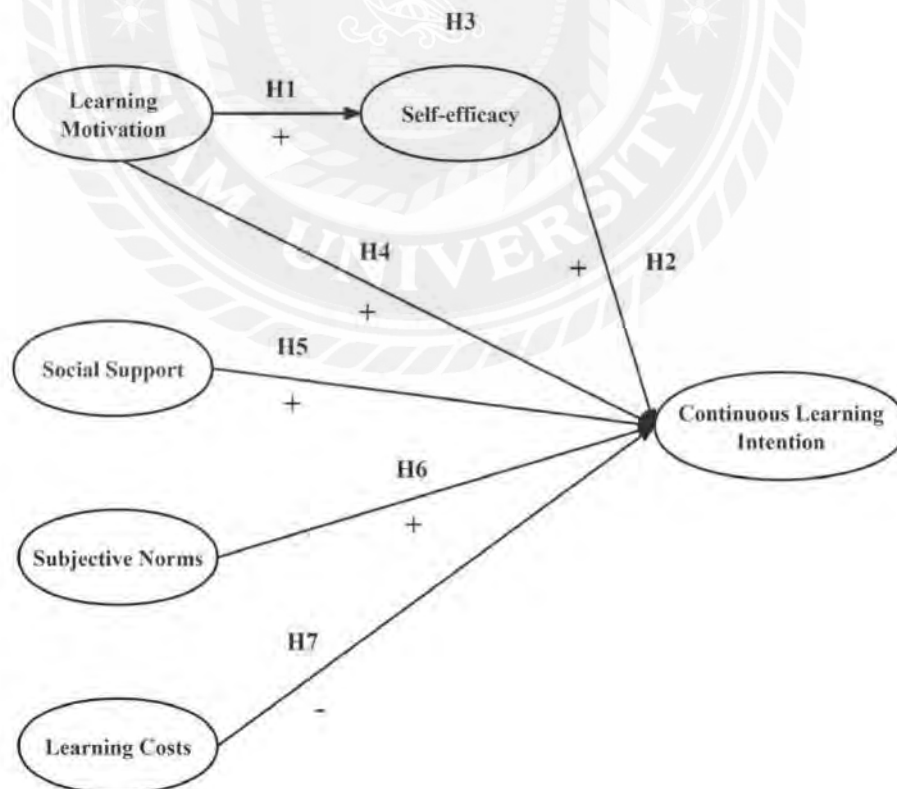


Figure 2.2 Conceptual Framework
Source: Created by Researcher

2.6 Hypotheses

H1: Learning motivation has a significant positive impact on self-efficacy.

H2: Self-efficacy has a significant positive impact on continuous learning intention.

H3: Self-efficacy mediates the relationship between learning motivation and continuous learning intention.

H4: Learning motivation has a significant positive impact on continuous learning intention.

H5: Social support has a significant positive impact on continuous learning intention.

H6: Subjective norms have a significant positive impact on continuous learning intention.

H7: Learning costs have a significant negative impact on continuous learning intention.

2.7 Operationalization of Variables

Referring to the above literature, the operationalization of the variables is determined and presented in Table 2.8 below.

Table 2.8 Operationalization of Variables

Variable	Definition	Scale Item	Reference	Likert Scale
Self Efficacy	Self-efficacy refers to adult learners' subjective judgments and evaluations of their ability to complete continuing education in public vocational colleges.	SE1.I believe I can achieve good results in continuing education at public vocational colleges. SE2.Even facing setbacks in continuing education, I believe I can overcome challenges. SE3.I believe I will struggle to succeed in continuing education at public vocational colleges. (R) SE4.I can effectively manage my study time in continuing education to complete all learning tasks. SE5.Even if I temporarily face setbacks in continuing my education, I can persist in continuing my studies.	Liang (2000).	1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree

Variable	Definition	Scale Item	Reference	Likert Scale
Learning Motivation	Learning motivation refers to the intrinsic psychological state or tendency that drives adult learners to participate in continuing education at public vocational colleges, maintain their learning behavior, and directs them toward learning goals.	LM1.I am passionate about learning new knowledge and often actively seek learning opportunities. LM2.I believe that continuous learning can improve my skills and abilities. LM3.To gain a group's respect, I will join continuing education activities. LM4.I have little interest in participating in continuing education. (R) LM5.I am happy to help others learn and progress in continuing education, even if it requires my own time and effort.	Tian & Pan (2006)	
Social Support	Social support refers to the emotional, informational, material, and other forms of support that adult learners receive from family, friends, the community, or other members of their social network. They utilize this support to cope with the difficulties and challenges	SS1.During my participation in continuing education, my family and friends provided me with material support. SS2.During my participation in continuing education, my family and friends provided me with emotional support. SS3.I can effectively utilize the help provided by others to overcome various learning problems. SS4. When I encounter difficulties in continuing education, I actively seek help from external sources. SS5. In continuing	Xiao (1994)	

Variable	Definition	Scale Item	Reference	Likert Scale
Subjective Norms	they encounter in continuing education.	education, I rarely receive recognition and assistance from others. (R)		
	Subjective norm refers to the social pressure that adult learners feel when deciding to participate in continuing education at public vocational colleges. This pressure typically originates from the expectations and opinions of acquaintances, such as friends and family, regarding the learners' behavior.	SN1.My family and friends approve of my participation in continuing education at public vocational colleges. SN2.My friends and relatives are also involved in continuing education at public vocational colleges. SN3.My family and friends are relatively satisfied with continuing education at public vocational colleges. SN4.I do not care about my friends' and relatives' opinions on my participation in continuing education. (R) SN5.My family and friends hope that I will participate in continuing education at public vocational colleges.	Li & Shao (2023)	
Learning Costs	Learning cost refers to the total sum of time, money, energy, and other resources that learners invest in the process of participating	LC1.I have incurred a relatively high economic cost to participate in continuing education at public vocational colleges. LC2.I have spent considerable time participating in continuing education at public vocational colleges. LC3.To participate in	Liu et al. (2007) Li (2023)	

Variable	Definition	Scale Item	Reference	Likert Scale
Continuous Learning Intention	in continuing education at public vocational colleges, including both direct and indirect costs.	continuing education at public vocational colleges, I have foregone other valuable opportunities. LC4. While participating in continuing education at public vocational colleges, I have experienced some negative emotions. LC5. I have hardly paid any significant price worth mentioning during my continuing education. (R)	Bhattacharjee (2001)	
	Continuous learning intention refers to the motivation and willingness of adult learners to continue participating in vocational college continuing education after completing a phase of continuing education.	CLI1. I plan to continue participating in continuing education at public vocational colleges. CLI2. Even after achieving my current goals, I will continue to participate in continuing education in the future. CLI3. I will continue attending vocational college and pursuing continuing education, rather than exploring other methods. CLI4. I will not rejoin the vocational college continuing education program after completing my current studies. (R) CLI5. I believe that continuous participation in continuing education at public vocational colleges is beneficial to me.		

Source: Created by Researcher

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

This study employed a mixed-methods research approach, focusing on adult learners participating in continuing education at public vocational colleges in Nanning, China. The aim was to analyze their continuous learning intention and identify effective strategies for improving the methods of continuing education at public vocational colleges. The research design was as follows:

A preliminary qualitative research was conducted through semi-structured interviews. Eight adult learners from five different public vocational colleges in Nanning were invited to participate in interviews. Each interview consisted of four questions and lasted between 20 and 30 minutes. The purpose of the interviews was to understand the variables influencing learners' continued participation in continuing education, laying the groundwork for subsequent qualitative research.

By reviewing literature on the research topic and related variables from both Chinese and international academia, the study defined variables and traced their theoretical origins. This helped in understanding previous research findings and measurement methods for variables, as well as in constructing the theoretical framework for this study. Additionally, it analyzed the relationships between variables and constructed a structural equation model for this research.

A questionnaire survey was adopted for quantitative research. The study sampled 413 adult learners from five public vocational colleges in Nanning for questionnaire distribution.

After completing the data collection, the study employed SPSS27 and AMOS27 software to conduct reliability and validity tests, descriptive statistical analysis, analysis of variance, measurement model analysis, and structural model testing on the questionnaire data. These methods were used to understand the impact mechanisms of relevant variables on adult learners' continuous learning intention.

By inviting eight experts and scholars in continuing education and adult education in Nanning to conduct a Content Validity Index (CVI) evaluation, the study assessed the validity of the model. Based on expert recommendations, valuable optimization strategies were proposed for the continuing education efforts of public vocational colleges in Nanning.

3.2 Population & Sample

3.2.1 Population

The geographical scope of this study is explicitly limited to Nanning City, Guangxi Zhuang Autonomous Region. As the capital of Guangxi and a core city in the Beibu Gulf Urban Agglomeration, Nanning gathers the largest number of vocational colleges with the most concentrated resources in the region. Its continuing education

development not only reflects the adaptability of regional industrial upgrading and people's livelihood needs but also possesses typicality as a regional sample. Therefore, focusing the research on Nanning can not only accurately capture the learning characteristics and needs of local adult learners but also provide references for the development of continuing education in public vocational colleges of similar cities.

Public vocational colleges in Nanning are the core carriers and important main bodies for conducting continuing education in the city, undertaking the key mission of meeting the diverse needs of adult learners such as academic advancement, skills training, and personalized development. It should be clarified that the research subject of this study were limited to public vocational colleges in Nanning. All subsequent content related to vocational education, including policy support, resource investment, school-running practices, and development effectiveness, was carried out around this research scope. To further clarify the research boundaries, it is necessary to first distinguish the core differences between public and private vocational colleges in Nanning (Table 3.1) and their impacts on this study:

Table 3.1 Core Differences Between Public and Private Vocational Colleges

Dimensions	Public Vocational Colleges	Private Vocational College
Operating Entity	Led by the government (education departments or industry competent authorities)	Funded by enterprises, social organizations, or individuals
Funding Sources	Primarily fiscal appropriations, supplemented by tuition fees and social donations	Primarily tuition income, with an extremely low proportion of fiscal subsidies
School-running Orientation	Emphasizes public welfare, serving regional industrial development, people's livelihood security, and public welfare training (e.g., community education, elderly education)	Market-oriented, focusing on popular employment areas and short-term skills training to pursue operational benefits
Target Groups	Covers a wide range of groups, including on-the-job personnel, community residents, the elderly, and low-income groups, with a focus on inclusiveness	Mainly on-the-job groups and unemployed job seekers, targeting paying groups with clear employment or skill improvement needs
Policy Adaptability	Strictly follows national and local vocational education policies, undertaking policy implementation tasks (e.g., tuition exemption, skill poverty alleviation training)	Flexibly responds to market demands, with policy adaptability focusing more on compliance and less proactive undertaking of public welfare tasks

The core reason why this study focused on public vocational colleges is related to the compatibility of research orientation brought by differences. Firstly, in terms of research theme compatibility, this study focused on "the influencing factors of continuous learning intention", and the public welfare attribute of public vocational colleges makes their continuing education programs more inclusive and stable. For example, public colleges usually reflect inclusiveness through low tuition fees and coverage of special groups, and ensure stability through long-term school-running plans and fixed teaching resources. Thus, they can more comprehensively reflect the real learning experiences and intentions of adult learners from different backgrounds, including low-income groups, the elderly, and community residents, effectively avoiding the problem of single service groups in private colleges caused by market orientation. Secondly, in terms of the stability of resource supply, relying on financial support, public vocational colleges have greater stability in teaching facilities, faculty teams, and curriculum systems. Therefore, the school-running mode and service quality of their continuing education are more replicable, making the research conclusions more promotable. In contrast, private colleges are more affected by market fluctuations, and their school-running directions and resource investment are prone to adjustment, making it difficult to reflect the long-term characteristics of continuing education development. Finally, in terms of policy relevance, public vocational colleges are the main carriers for the implementation of continuing education policies in Nanning. For example, the aforementioned policies such as financial appropriations, foreign loan fund support, and community education cooperation are mainly implemented relying on public colleges. Therefore, focusing on public colleges can more accurately analyze the impact of policy support on the development of continuing education and learners' intentions.

The research subjects of this study were adult learners from five public vocational colleges in Nanning City. The five public vocational colleges are as follows: Nanning Vocational and Technical University, Guangxi Construction Vocational and Technical College, Guangxi Communications Vocational and Technical College, Guangxi Vocational and Technical College, and Guangxi Health Vocational and Technical College. These institutions are representative colleges in Nanning City that offer continuing education, possessing relatively rich educational resources and a complete system for continuing education training. Their continuing education includes vocational skills training, academic continuing education, qualification certificate training, short-term skills training, and community interest education, among other content. The number of adult learners registered for continuing education in the five public vocational colleges as of June 2024 is shown in Table 3.2.

Table 3.2 Research Sample

Number	Institution	Type	Number of Adult Learners
1	Nanning Vocational and Technical College	Public vocational college	1318
2	Guangxi Construction Vocational and Technical College	Public vocational college	871

Number	Institution	Type	Number of Adult Learners
3	Guangxi Transportation Vocational and Technical College	Public vocational college	523
4	Guangxi Vocational and Technical College	Public vocational college	247
5	Guangxi Health Vocational and Technical College	Public vocational college	306
Total			3265

Source: Official statistics provided by the Continuing Education Departments (or Academic Affairs Offices) of the five sample institutions, as of June 2024.

Sample Inclusion Criteria

To ensure the compatibility of samples with the research theme, this study sets the following clear inclusion criteria:

Identity Criterion

Adult learners who were currently participating in or had participated in continuing education programs (including academic education, skills training, community education, etc.) at the five sample colleges within the past year. Excluded were those who had not actually participated in the college's continuing education, only registered but not enrolled, or failed to complete phased learning after enrollment.

Cognition and Communication Criterion

Possess full capacity for civil conduct, be able to clearly understand the questionnaire content and complete the survey independently (including online/offline filling). Excluded were those with cognitive impairments, inability to communicate effectively, or inability to complete the questionnaire independently.

Voluntary Participation Criterion

Be fully informed of the research purpose, participate voluntarily in this survey, and agree to the strict confidentiality of personal information and survey responses.

Specific Criteria for Sample Selection

On the basis of the inclusion criteria, this study further clarified multi-dimensional stratified criteria for sample selection to ensure the representativeness and heterogeneity of samples, including:

Age Criterion: 18 years old and above (consistent with the core definition of "adult learners" in this study), with no upper age limit as long as the sample inclusion criteria are met.

Educational Background Criterion: Cover samples from four educational levels—junior high school and below, senior high school/technical secondary school, junior college, and bachelor's degree and above. The purpose was to understand differences in learning abilities and needs among learners with different educational backgrounds (e.g., academic improvement needs of low-education groups, skill deepening needs of high-education groups) and cover the characteristics of continuous

learning intention of samples from different educational backgrounds.

Occupational Background Criterion: Include vocational college students (participating in academic continuing education), on-the-job personnel (divided by industry: construction, transportation, health, manufacturing, service industry, etc.), unemployed/layoff personnel, retired personnel, and freelancers.

Type of Learning Program Criterion: Cover academic continuing education (adult college entrance examination, correspondence courses, etc.), vocational skills training (e.g., construction, nursing skills), qualification certificate training (e.g., professional qualifications, vocational skill level certificates), and community interest education (e.g., calligraphy, tea art). This aimed to understand the differences in learning goals, costs, and experiences of different types of learning programs, as well as the corresponding differences in learners' continuous learning intention logic, ensuring coverage of diverse learning scenarios.

3.2.2 Sample Size

Calculating the Unadjusted Sample Size: By precisely calculating the sample size, researchers can reliably estimate the population proportion at a certain confidence level (Dai, 2022). This estimation must take into account the expected population proportion, the potential errors that may occur during the sampling process, and the desired level of confidence.

Based on this, the study used Cohen's formula to calculate the unadjusted sample size. This formula originates from the theory of sample size estimation in statistics and is widely used in social science research and market surveys (Cochran, 1977; Yamane, 1967). This formula was chosen because it can effectively estimate the sample size required to estimate the population proportion based on a given confidence level and sampling error. At the same time, the formula is concise and clear, and the calculation is relatively simple, making it suitable for the context of this study.

$$n_1 = \frac{z^2 \times p \times (1-p)}{e^2}$$

Where:

Confidence Level (z-value): The confidence level is a crucial indicator for assessing the reliability of sampling results, typically expressed as a percentage. In statistics, a 95% confidence level is widely accepted as a reasonable standard, corresponding to the standard normal distribution's 1.96 standard deviations (z-value) (Roscoe, 1975). The z-value adjusts the sample size to ensure the sampling results are close to the actual population situation within a certain probability.

Sampling Error (e): Sampling error refers to the difference between the sample statistic and the population parameter, indicating the precision of the sampling results. This study sets the sampling error to $\pm 5\%$, allowing the difference between the sample proportion and the population proportion not to exceed three percentage points (Lohr, 2009). The magnitude of the sampling error directly affects the sample size calculation; the smaller the error, the larger the sample size.

Population Proportion (p): The population proportion refers to the distribution of the target variable within the population. In the absence of prior information, it is common to assume $p=0.5$ to obtain the maximum possible sample size.

$$n_1 = \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2}$$

$$= 384.16$$

Conducting Finite Population Correction: This study employed Cochran's (1977) formula for finite population correction. Based on finite population sampling theory, this formula can provide a more accurate estimate of the sample size, optimize the use of research resources, and reduce sampling bias. It has been widely recognized and applied in practice. For researchers sampling from a finite population, adopting this formula is a crucial step in ensuring the quality of the research and the reliability of the results.

$$n_2 = \frac{n_1}{1 + \frac{n_1 - 1}{N}}$$

Where:

n_1 = unadjusted sample size.

N = total sample size.

$$n_2 = \frac{384.16}{1 + \frac{384.16 - 1}{3265}}$$

$$= 343.81$$

$$\approx 344$$

Compensating for Potential Non-Responders: Typically, researchers increase the sample size by a certain percentage (such as 10% to 30%) based on experience or recommendations from relevant literature to account for non-responders. Considering the characteristics of adult learners, this study allocated 20% to compensate for potential non-responders.

$$n_3 = n_2 \times (1 + P)$$

Where:

P is the compensation percentage, which is 20% in this study.

$$n_3 = 344 \times (1 + 0.2)$$

$$= 412.8$$

$$\approx 413$$

Therefore, the sample size for this study was 413 individuals.

3.3 Sampling Procedures

Within social sciences and related disciplines, data collection is essential in deepening researchers' comprehensive understanding and detailed interpretation of theoretical frameworks. Given the importance of data collection, carefully selecting the pathways and resources for data acquisition becomes particularly crucial, as even the most sophisticated analytical techniques cannot compensate for the deficiencies caused by inadequate data collection (Tongco, 2007). Furthermore, the comprehensiveness and accuracy of data collection are vital for ensuring the reliability and validity of research results; they are indispensable foundational steps in scientific research. Therefore, researchers must invest sufficient effort in the data collection phase to ensure the quality of subsequent analysis and the scientific nature of research conclusions.

3.3.1 Purposive Sampling

Purposeful sampling, also known as judgmental or theoretical sampling, is a non-probability sampling method. It relies on the researcher's judgment and purpose to select samples that can provide rich information, possess specific characteristics, or are in specific situations relevant to the research question. Purposeful sampling is not random; it deliberately chooses cases or individuals that can best help researchers understand and interpret the research phenomenon.

Specifically, purposeful sampling is a carefully designed sampling technique that requires researchers to identify and select individuals or groups within a specific domain who have a proficient grasp of or deep understanding of the research topic (Matjokana, 2023). This process tests the researcher's professional abilities and insight, ensuring they can accurately select participants who contributed the most valuable and relevant data to the study. Through this meticulous screening process, researchers ensure the targeted and in-depth nature of the collected data, thereby significantly enhancing the efficiency and quality of research work under resource constraints. Applying this sampling method optimizes the data collection process and strengthened the representativeness and persuasiveness of research results, which is of great significance for achieving research objectives.

The adult learners in this study were from purposively selected five public vocational colleges in Nanning City: Nanning Vocational and Technical University, Guangxi Construction Vocational and Technical College, Guangxi Communications Vocational and Technical College, Guangxi Vocational and Technical College, and Guangxi Health Vocational and Technical College. These institutions have performed relatively well in continuing education in Nanning City. Studying adult learners from these colleges helped identify the factors influencing adult learners' intentions to continue learning in continuing education, enabling researchers to more effectively improve the quality of public vocational college continuing education and contribute to the construction of a lifelong learning system in Nanning City.

3.3.2 Proportional Sampling

Proportional sampling is a probability sampling method in which the sample size is proportional to the various subgroups or units within the population. This means that the proportion of each subgroup or unit in the sample is the same as its proportion in the population. Proportional sampling helps enhance the sample's representativeness,

especially in diverse populations, ensuring that the key characteristics of each subgroup are adequately reflected in the data. In educational research, proportional sampling plays an important role in maintaining the diversity of the population. Neyman (1934) pointed out that proportional representation can minimize standard error and enhance the reliability of research results by sampling according to the proportions of each subgroup in the population.

This study employed proportional sampling to select adult learners from the five public vocational colleges (Table 3.3). The sampling steps were as follows:

1) Stratification: Divide the adult learners participating in continuing education from the five public vocational colleges into five groups.

2) Determine Sample Size: Confirm the sample size to be 413 individuals through calculations.

3) Proportional Allocation: To determine the sampling quantity for each group, stratify the sample size based on the proportion of adult learners from each college in the total sample size.

4) Random Sampling: Conduct random sampling within each group.

Table 3.3 Stratified Sampling Results of 5 Public Vocational Colleges

Institution	Number of Adult Learners	Percentage	Sample Size
Nanning Vocational and Technical College	1318	40.37%	167
Guangxi Construction Vocational and Technical College	871	26.68%	110
Guangxi Transportation Vocational and Technical College	523	16.02%	66
Guangxi Vocational and Technical College	247	7.57%	31
Guangxi Health Vocational and Technical College	306	9.37%	39
Total	3265	100%	413

Source: Created by Researcher

3.4 Research Instrument

3.4.1 Research Instrument's Development

A questionnaire was developed for quantitative data collection. The questionnaire is divided into two parts, with the specific structure shown in Table 3.4.

Table 3.4 Structure of the Survey Questionnaire

Question Type	Question Dimension	Number of Questions
Single-Choice	Basic Information of the Sample	8
Likert Five-Point Scale	Learning Motivation (LM)	4

Question Type	Question Dimension	Number of Questions
	Self-efficacy (SE)	5
	Social Support (SS)	5
	Subjective Norms (SN)	5
	Learning Costs (LC)	5
	Continuous learning intention (CLI)	5
Total		37

Based on the results of the literature review, measurement items for the independent variables (learning motivation, social support, subjective norms, learning costs), the mediating variable (self-efficacy), and the dependent variable (continuous learning intention) in the structural equation model of this study were established. All measurement items were derived from established scales from previous research and were revised according to the research topic (Table 3.5).

Table 3.5 Variable Dimensions

Variable	Reference	Dimension	Cronbach's α
Learning Motivation	Tian Pan, 2006	Inquiry Interest, Competence Pursuit, Reputation Acquisition, Altruistic Orientation	0.84
Self-efficacy	Liang, 2000.	Self-efficacy in Learning Ability, Self-efficacy in Learning Behavior	0.88
Social Support	Xiao, 1994	Objective Support, Subjective Support, Utilization of Support	0.78
Subjective Norms	Li & Shao, 2023	Injunctive Norms, Descriptive Norms	0.850
Learning Costs	Liu et al., 2007. Li, 2023.	Economic Cost, Time Cost, Opportunity Cost, Emotional Cost	Liu (0.832) Li (0.843)
Continuous Learning Intention	Bhattacharjee, 2001	Future Planning, Continuation Intention, Irreplaceability	0.83

Source: Created by Researcher

Learning Motivation: The College Student Learning Motivation Scale, developed by Tian and Pan (2006), is a well-established instrument in the psychological literature for assessing the learning motivation of university students. Grounded in Ausubel's achievement-motivation theory, the scale emphasizes intrinsic motivational forces and comprises four dimensions: inquiry interest, competence pursuit, reputation acquisition, and altruistic orientation. It contains 34 items rated on a five-point Likert scale (1=completely disagree to 5=completely agree); higher scores indicate stronger learning motivation. With respect to reliability and validity, the Cronbach's α coefficients for the four dimensions range from 0.772 to 0.900, with an overall scale α of 0.9003, indicating satisfactory internal consistency. Confirmatory factor analysis reveals that the four factors account for 45.152% of the total variance, and the moderate-to-low inter-factor correlations demonstrate adequate discriminant validity.

The scale has been widely applied and adapted in psychological studies—such as investigations of learning motivation among teacher education students, aviation service majors, and police academy cadets—with its reliability and validity consistently confirmed.

For the present study, Tian and Pan's (2006) scale was re-adapted to measure the learning motivation of adult learners. The adapted items are presented in Table 3.6.

Table 3.6 Adaptation of Learning Motivation

Source	Dimension	Original Item	Adapted Item	
Tian &Pan, 2006	Interest in knowledge	Overall, I have a strong interest in studying university courses. After class, I often go to the library to read books and magazines related to my major.	LM1	I am passionate about learning new knowledge and often actively seek out learning opportunities.
	Pursuit of ability	I often consciously improve my research abilities by reading professional books.	LM2	I believe that by continuously learning, I can improve my skills and abilities.
	Reputation acquisition	I always want to win others' respect by improving my academic performance.	LM3	To gain a group's respect, I will join continuing education activities.
	Altruistic orientation	I always want to use the knowledge I have learned to help others solve problems.	LM5	I am happy to help others learn and progress in their continuing education, even if it means dedicating my own time and effort to their growth.
	Reverse Question (R)	None	LM4	I have little interest in participating in continuing education. (R)

Self-efficacy: The Academic Self-Efficacy Scale, developed by Liang Yusong in 2000, is a widely used instrument in psychology for assessing individuals' academic self-efficacy. Created at Central China Normal University and informed by the dimensions in Pintrich and DeGroot's 1990 academic self-efficacy questionnaire, it employs a five-point Likert response format, with some items reverse-scored.

Reliability and validity are consistently strong: the full scale's Cronbach's alpha typically ranges from 0.75 to 0.88, and in several studies, it has been reported to be as high as 0.90. Dimension-specific alphas are 0.75 to 0.82 for the learning ability self-efficacy subscale and 0.52 to 0.82 for the learning behavior self-efficacy subscale. The scale has demonstrated good psychometric properties across diverse groups, including university students, nursing students, and military cadets.

The scale is extensively applied in psychology, education, and mental health research to examine relationships among academic self-efficacy, academic achievement, mental health, and learning behaviors. For example, researchers have utilized it to investigate the relationships between self-efficacy and variables such as academic performance, psychological well-being, and learning burnout. Given that the present study focuses on adult learners in China, Liang Yusong's 2000 Academic Self-Efficacy Scale was selected, and the items were appropriately adapted as shown in Table 3.7.

Table 3.7 Adaptation of Self-Efficacy Items

Source	Dimension	Original Item	Adapted Item
Liang,2000.	Self-efficacy in learning ability	I believe I can achieve good results in my studies.	SE1 I believe I can achieve good results in continuing education at public vocational colleges.
		I believe I can effectively solve the problems I encounter in my studies.	SE2 Even facing setbacks in continuing education, I believe I can overcome challenges.
	Self-efficacy in learning behavior	During the learning process, I can plan and complete my learning tasks.	SE4 In continuing education, I can effectively manage my study time to complete all learning tasks.
		Even when facing setbacks in my studies, I have enough ability to overcome difficulties and persist in learning.	SE5 Even if I temporarily face setbacks in continuing education, I can persist in continuing

Source	Dimension	Original Item	Adapted Item	
				my studies.
	Reverse Question (R)	None	SE3	I believe that I am not capable of achieving success in continuing education at public vocational colleges. (R)

Social Support: The Social Support Rating Scale SSRS developed by Xiao Shuiyuan in 1994, is a widely used tool in social psychology for assessing individuals' levels of social support. The scale consists of ten items, grouped into three dimensions. Objective support refers to three items that cover tangible or material forms of assistance, such as financial help and social connections. Subjective support, four items, reflects the emotional support an individual subjectively experiences, including feelings of being respected and understood. Support utilization: three items gauge whether and how individuals actually seek or accept help from others.

For scoring and application, some studies use a total score ranging from 0 to 40 points, while others apply item-level scoring from 0 to 44. The SSRS has been extensively employed in mental health social work and clinical research to evaluate social support and its links to psychological well-being and illness. Regarding reliability and validity, the scale exhibits good psychometric qualities. Its internal consistency coefficient, Cronbach's alpha, typically ranges from 0.80 to 0.90. Tailored to the Chinese context and incorporating local characteristics, it is readily adaptable across diverse cultural settings. In the present study, the original SSRS was re-adapted by removing selected items and employing a five-point Likert scale to measure the social support received by adult learners in continuing education. The adapted items are presented in Table 3.8.

Table 3.8 Adaptation of Social Support Items

Source	Dimension	Original Item	Adapted Item	
Xiao,1994	Objective support	In the past, when you encountered urgent and challenging situations, what kinds of financial support did you receive?	SS1	During my participation in continuing education, my family and friends provide me with material support.
	Subjective support	In the past, when you encountered urgent and challenging situations, who provided you with comfort and care?	SS2	During my participation in continuing education, my family and friends provide me with emotional support.

Source	Dimension	Original Item	Adapted Item	
	The individual's utilization	Have you actively participated in activities organized by groups or clubs?	SS3	I can effectively utilize the help provided by others to overcome various learning challenges.
		What methods do you use to seek help when you encounter troubles?	SS4	When I encounter difficulties in continuing education, I actively seek help from external sources.
	Reverse Question (R)	None	SS5	In continuing education, I rarely receive recognition and assistance from others. (R)

Subjective Norms: According to the TPB, subjective norms consist of normative beliefs and motivation to comply. Normative beliefs refer to an individual's perceptions of what significant others (such as family, friends, colleagues, etc.) think they should or should not do; motivation to comply refers to the individual's internal motivation to adhere to these expectations. Furthermore, subjective norms can be divided into injunctive norms and descriptive norms. Injunctive norms involve the direct demands or instructions from significant others regarding an individual's behavior, while descriptive norms involve the influence of others' actual behaviors on the individual. Depending on the dimension of Subjective Norms, measurement methods also vary. For example, Li and Shao (2023) distinguished between injunctive and descriptive norms within the concept of Subjective Norms. They designed four measurement items in their study of consumer behavior regarding the purchase of eco-friendly clothing. The Cronbach's α coefficient for this scale was 0.850; therefore, this study used this scale to measure the subjective norms of adult learners. The adapted items are shown in Table 3.9.

Table 3.9 Adaptation of Subjective Norms Items

Source	Dimension	Original Item	Adapted Item	
Li & Shao, 2023	Injunctive norms	The important people around me (such as family and friends) think I should buy eco-friendly clothing.	SN1	My family and friends approve of my participation in continuing education at public vocational colleges.
		The social group I belong to (such as colleagues and community members) would approve	SN5	My family and friends hope that I will participate in continuing education at

Source	Dimension	Original Item	Adapted Item	
		of my purchasing eco-friendly clothing.		public vocational colleges.
	Descriptive norms	The important people around me (such as family and friends) actually buy eco-friendly clothing.	SN2	I have friends and relatives who are also involved in continuing education at public vocational colleges.
		Most people in my social group (such as colleagues and community members) would buy eco-friendly clothing.	SN3	My family and friends are relatively satisfied with continuing education at public vocational colleges.
	Reverse Question (R)	None	SN4	I do not care about my friends and relatives' opinions on my participation in continuing education. (R)

Learning Costs: Based on Cost-Benefit Theory, this study measured learning costs by dividing them into two dimensions: direct costs and indirect costs. In line with the learning characteristics of adult learners, direct learning costs encompass both economic and time costs, while indirect learning costs comprise opportunity costs and emotional costs. The measurement scales for learning costs referred to the Learning Cost Measurement Scale by Liu et al. (2007) (with a Cronbach's α coefficient of 0.832) and the parts related to learning costs in the Learning Motivation Measurement Scale by Li (2023) (with a Cronbach's α coefficient of 0.843), and the scale items were adapted according to the research topic, as shown in Table 3.10.

Table 3.10 Adaptation of Learning Costs Items

Source	Dimension	Original Item	Adapted Item	
Liu,et al., 2007. Li, 2023.	Economic costs	Purchasing learning materials (such as books, online courses, etc.) has increased my financial burden.	LC1	I have incurred a relatively high economic cost to participate in continuing education at public vocational colleges.
	Time costs	Learning takes up a lot of time that could have been used for work or leisure.	CL2	I have spent a considerable amount of time participating in continuing education at public vocational colleges.

Source	Dimension	Original Item	Adapted Item	
	Opportunity costs	I have lost the opportunity to earn extra income because of my commitment to learning.	CL3	To participate in continuing education at public vocational colleges, I have foregone other valuable opportunities.
	Emotional costs	Learning new content often makes me feel frustrated and self-doubting.	CL4	During my participation in continuing education at public vocational colleges, I have experienced some negative emotions.
	Reverse Question (R)	None	CL5	During the process of continuing education, I have hardly paid any significant price worth mentioning. (R)

Continuous Learning Intention: To measure the continuous learning intention of adult learners, this study employed the Continuous Learning Intention Scale developed by Bhattacharjee (2001). This scale is used to assess students' intention to continue using the blended learning system, encompassing three dimensions: learning satisfaction, learning confirmation, and continuous learning intention. Among them, the continue learning intention consists of 3 items, which are divided into three dimensions: future planning, continuation intention, and irreplaceability, with a Cronbach's α coefficient of 0.83. As shown in Table 3.11, this study adapted the items to align with the research topic.

Table 3.11 Adaptation of Continuous Learning Intention Items

Source	Dimension	Original Item	Adapted Item	
Bhattacharjee, 2001.	Future planning	In the near future, I plan to maintain or even increase my use of this system.	CLI1	I plan to continue participating in continuing education at public vocational colleges.
	Continuation intention	I will continue to use this system rather than stop using it.	CLI2	Even after achieving current goals, I will continue to participate in continuing education in the future.
	Irreplaceable	I will continue to use this system instead of other	CLI3	I will continue attending vocational college for

Source	Dimension	Original Item	Adapted Item	
		systems.		continuing education, rather than exploring other methods.
		If I could choose again, I would still use this system because it has been beneficial to me.	CLI5	I believe that continuous participation in continuing education at public vocational colleges is beneficial to me.
	Reverse Question (R)	None	CLI4	Upon completing my current studies, I will not return to the vocational college for further education. (R)

3.4.2 Item-Objective Congruence

To ensure that the adapted scale has good content validity, this study employed the Item-Objective Congruence (IOC) index to assess the content validity of the questionnaire. The IOC systematically evaluates the fit between each item and the construct by having experts rate the relevance of each item to the construct. This helped researchers determine whether the items truly measure what they are intended to measure, avoiding items that deviate from the topic or are irrelevant, thereby enhancing the accuracy of the measurement. Therefore, this study invited three experts to participate in the IOC assessment (Table 3.12).

Table 3.12 Information of IOC Review Experts

No.	Name	Academic Title	Affiliation	Field / Degree	Nationality
1	Fang Xujun	Professor	Nanning Vocational and Technical University	Doctor of Education	Chinese
2	Sungworn Ngudgratoke	Associate Professor	Michigan State University	Ph.D. in Measurement and Quantitative Methods	Thai
3	Arlyne Marasigan	Professor	Graduate School Division Jose Rizal University	Doctor of Education	Filipino

Experts assessed the Item-Objective Congruence (IOC) of the questionnaire items based on a rating scale ranging from -1 (incongruent) to +1 (congruent). The study set the following criteria: when the IOC value exceeds 0.50, the item is considered to have reached an acceptable level; if the IOC value exceeds 0.75, it indicates that the item is highly relevant to the construct being measured and has good logical coherence. For items that do not meet the above standards, the research team revised or removed them based on the specific feedback from the experts. The results of this IOC analysis provided empirical support for the logical validity and content fit of all items in the final questionnaire. The IOC assessment results are shown in Table 3.13.

Table 3.13 IOC Assessment Results

Construct	Item No.	Rating from Experts			ΣR	$OC \frac{\Sigma R}{N}$	Result
		Dr. 1	Dr.2	Dr.3			
Learning Motivation	LM1	1	1	1	3	1	Pass
	LM2	1	0	1	2	0.67	Pass
	LM3	1	1	1	3	1	Pass
	LM4	1	1	1	3	1	Pass
	LM5	-1	-1	0	-2	-0.67	Delete
Self-efficacy	SE1	1	1	1	3	1	Pass
	SE2	1	1	1	3	1	Pass
	SE3	1	1	1	3	1	Pass
	SE4	1	1	1	3	1	Pass
	SE5	-1	1	1	1	0.33	Modify
Social Support	SS1	1	1	1	3	1	Pass
	SS2	1	1	1	3	1	Pass
	SS3	1	0	1	2	0.67	Pass
	SS4	1	-1	1	1	0.33	Modify
	SS5	1	1	1	3	1	Pass
Subjective Norms	SN1	1	0	1	2	0.67	Modify
	SN2	1	0	1	2	0.67	Modify
	SN3	1	0	1	2	0.67	Modify
	SN4	1	1	1	3	1	Pass
	SN5	1	1	1	3	1	Pass
Learning Costs	LC1	1	1	1	3	1	Pass
	LC2	1	1	1	3	1	Pass
	LC3	1	-1	1	1	0.33	Modify
	LC4	1	-1	1	1	0.33	Modify
	LC5	1	1	1	3	1	Pass
Continuous Learning Intention	CLI1	1	1	1	3	1	Pass
	CLI2	1	1	1	3	1	Pass
	CLI3	1	1	1	3	1	Pass
	CLI4	1	1	1	3	1	Pass
	CLI5	1	1	1	3	1	Pass

Based on the IOC assessment results and expert opinions, the study revised some items of the scale. Although the average scores of items SN1, SN2, and SN3 were greater than 0.5, they were also revised in accordance with the specific suggestions from the experts. The results of the item revisions are shown in Table 3.14.

Table 3.14 Item Revision Results

Item	Original Content	Modified Result
LM5	I am happy to help others learn and progress in their continuing education, even if it means dedicating my own time and effort. 我很乐意在继续教育中帮助他人学习和进步，即使这可能会花费我自己的时间和精力。	Delete item
SE5	Even if I temporarily face setbacks in continuing my education, I can persist in pursuing my studies. 即使我在继续教育中暂时面临挫折，我也能够坚持继续学习。	Even if others do not ask me, I will still insist on completing my continuing education. 即使他人没有要求我，我也会坚持完成继续教育。
SS4	When I encounter difficulties in continuing education, I actively seek help from external sources. 当我在继续教育中遇到困难时，会主动向外界寻求帮助。	When I encounter difficulties in continuing education, I can definitely get help from external sources. 当我继续教育遇到困难时，我肯定能从外部来源获得帮助。
SN1	My family and friends approve of my participation in continuing education at public vocational colleges. 我的亲朋好友赞同我参与公立职业院校继续教育。	My family and friends expect me to actively participate in continuing education at public vocational colleges. 家人鼓励我参与公立职业院校的继续教育
SN2	I have friends and relatives who are also involved in continuing education at public vocational colleges. 我有亲友好友同样参与公立职业院校继续教育。	I have friends and relatives who encourage me to pursue continuing education at public vocational colleges. 我身边的亲朋好友，都鼓励我认真完成公立职业院校的继续教育
SN3	My family and friends are relatively satisfied with continuing education at public vocational colleges. 我的亲朋好友对公立职业院校继续教育比较满意。	My family and friends are waiting to see my success in continuing education at public vocational colleges. 我的亲人与朋友，都期望我在公立职业院校继续教育中取得成功。
LC3	To participate in continuing education at public vocational colleges, I have foregone other valuable opportunities. 为参与公立职业院校继续教育，	To participate in continuing education at a vocational college, I had to give up other opportunities. 为公立参与职业院校继续教育，我放弃了做其他事情的机会。

Item	Original Content	Modified Result
	我放弃了其它有价值的机会。	
LC4	During my participation in continuing education at public vocational colleges, I have experienced some negative emotions. 在参与公立职业院校继续教育过程中, 我承受了一定的负面情绪。	During my participation in continuing education at public vocational colleges, I invested not only money but also time, effort, and emotions. 在参与公立职业学院继续教育的过程中, 我投入的不仅仅是金钱, 还有情感和努力。

3.4.3 Reliability Testing

Reliability testing is a crucial statistical method used to evaluate the stability and consistency of measurement tools, including questionnaires, tests, and observational instruments. Its primary purpose is to ensure that the measurement results accurately reflect the actual state of the object being measured, thereby improving the reliability and scientific nature of the research findings (Hair et al., 2017). There are various methods for reliability testing, and this study primarily examined the internal consistency of the scales. Reliability testing is commonly assessed using Cronbach's α coefficient as the standard. In statistics, if the Cronbach's α value is above 0.8, it indicates that the scale has excellent reliability; above 0.7 indicates acceptable results; if it is above 0.6, the scale should be revised but still has value; if it is below 0.6, the scale items should be eliminated or modified (Bardhoshi & Erford, 2017). The statistical significance of the Cronbach's α values in this study is shown in Table 3.15.

Table 3.15 Cronbach's Alpha Interpretation

Cronbach's α	Interpretation
$\alpha \geq 0.9$	Excellent
$0.9 < \alpha \leq 0.8$	Good
$0.8 < \alpha \leq 0.7$	Acceptable
$0.7 < \alpha \leq 0.6$	Questionable
$0.6 < \alpha \leq 0.5$	Poor
$\alpha < 0.5$	Unacceptable

Source: Hair, J., Money, A., Page, M., & Samouel, P. (2003). Research methods for business. J. F. Hair, A. Money, M. Page, & P. Samuel, Research Methods for Business, 244.

3.4.4 Validity Testing

Validity testing is a crucial process for determining whether a measurement tool or method can accurately measure the concept or specific characteristics of a domain that it is intended to assess. The main types of validity include content validity, construct validity, and criterion-related validity (Farooqi et al., 2019). This study tested the content validity and construct validity of the questionnaire. For construct validity, the KMO value and Bartlett's test of sphericity were used: The KMO value is a statistical

indicator used to measure whether the common variance among variables is suitable for factor analysis. Its value ranges from 0 to 1, and the closer the KMO value is to 1, the more common variance there is among the variables, indicating that the data is more suitable for factor analysis. Bartlett's test of sphericity was used to determine whether the items on the scale are independent of each other. If the p-value of the test result is less than 0.05, it indicates that there is a correlation among the variables, and the data are suitable for factor analysis.

3.4.5 Pilot Testing

Pilot Testing, as an initial exploratory study, plays an irreplaceable role in the in-depth development of scientific inquiry. The core value of pilot testing lies in its ability to provide researchers with a practical platform where they can test and evaluate various research methods before applying them in actual practice (Hassan et al., 2006). This methodological testing ground not only helps optimize research design but also reveals potential issues, thereby laying a solid foundation for subsequent large-scale studies.

To ensure that the questionnaire used in the study could effectively measure the variables under investigation and to guarantee the reliability and validity of the research data, this study conducted a pilot study before the large-scale formal survey. The pilot study was a crucial step in questionnaire survey research and held significant importance in the study. Firstly, the pilot study could identify problems in the questionnaire and make timely corrections to improve the overall quality of the questionnaire; secondly, the pilot study could help predict difficulties and challenges that might be encountered in the formal survey, ensuring the smooth progress of the survey; lastly, the data collected from the pilot study could be used for preliminary assessment of the questionnaire's reliability and validity, providing a basis for further optimization of the questionnaire.

Reliability Testing of the Pilot Study

In the pilot study process, this study stratified and randomly selected 45 adult learners from the five sample institutions as pre-test subjects and collected data through an online survey questionnaire. The collected data were subjected to reliability and validity tests. The reliability test results are presented in Table 3.16, where Cronbach's α coefficients for all dimensions exceed 0.7, indicating good reliability of the scale.

Table 3.16 Reliability Test Results of the Pilot Study

Variable	No. of Items	N	Coefficient of Cronbach's α
Self-efficacy (SE)	5	45	0.889
Learning Motivation (LM)	4	45	0.844
Social Support (SS)	5	45	0.924
Subjective Norms (SN)	5	45	0.878
Learning Costs (LC)	5	45	0.901
Continuous Learning Intention (CLI)	5	45	0.895

Detailed statistics for the total items in each dimension are presented in Table 3.17.

Table 3.17 Reliability Test Results for Each Item in the Pilot Study

Variable	Item	Corrected Item- Total Correlation (CITC)	Cronbach's Alpha if Item Deleted	Cronbach 's Alpha
Self-efficacy (SE)	SE1	0.753	0.862	0.889
	SE2	0.699	0.872	
	SE3	0.726	0.866	
	SE4	0.776	0.856	
	SE5	0.714	0.869	
Learning Motivation (LM)	LM1	0.723	0.789	0.844
	LM2	0.691	0.8	
	LM3	0.651	0.814	
	LM4	0.678	0.803	
Social Support (SS)	SS1	0.742	0.919	0.924
	SS2	0.813	0.905	
	SS3	0.803	0.907	
	SS4	0.832	0.902	
	SS5	0.833	0.901	
Subjective Norms (SN)	SN1	0.73	0.848	0.878
	SN2	0.737	0.847	
	SN3	0.705	0.853	
	SN4	0.691	0.857	
	SN5	0.711	0.855	
Learning Costs (LC)	LC1	0.751	0.883	0.901
	LC2	0.78	0.875	
	LC3	0.78	0.874	
	LC4	0.743	0.884	
	LC5	0.753	0.88	
Continuous Learning Intention (CLI)	CLI1	0.74	0.872	0.895
	CLI2	0.788	0.862	
	CLI3	0.774	0.865	
	CLI4	0.652	0.89	
	CLI5	0.765	0.867	

From Table 3.17, it can be seen that the reliability coefficients for all dimensions exceeded 0.8, indicating that the research data were of high quality. Regarding the "Cronbach's α if item deleted," the reliability coefficient did not significantly increase after the deletion of any item, suggesting that the items should not be removed. For the "Corrected Item-Total Correlation (CITC) values," the CITC values for all items were greater than 0.4, indicating a good correlation among the items and, consequently, a satisfactory level of reliability. In summary, the reliability coefficients for the research data exceeded 0.8, indicating that the data possessed high reliability and were suitable for further analysis.

Validity Testing of the Pilot Study

The validity test results of the pilot testing are presented in Table 3.18, with p-values for all dimensions being less than 0.05 and KMO values exceeding 0.8, indicating good construct validity of the questionnaire and suitability for exploratory factor analysis.

Table 3.18 Results of KMO and Bartlett's Test for the Pilot Study

Variable	KMO	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
Self-efficacy (SE)	0.868	113.403	10	0.000
Learning Motivation (LM)	0.812	68.413	6	0.000
Social Support (SS)	0.889	156.109	10	0.000
Subjective Norms (SN)	0.843	107.143	10	0.000
Learning Costs (LC)	0.827	136.932	10	0.000
Continuous Learning Intention (CLI)	0.839	126.452	10	0.000

3.5 Data Collection

3.5.1 Ethical Research Procedures

In the data collection process, adherence to ethical research procedures is essential to ensure that the research process meets the highest ethical standards. This study adopted the following methods to ensure the ethics of data collection (Cao et al., 2024):

1) **Informed Consent:** Informed consent is one of the core principles of ethical research. The researcher provided participants with sufficient information, including the purpose of the study, procedures, potential risks and benefits, and the right of participants to withdraw from the study at any time. Data collection proceeded only with the participants' full understanding and voluntary consent.

2) **Privacy and Confidentiality:** Protecting the privacy of participants and the anonymity of data is an important aspect of ethical research. The researcher took measures to ensure the security of personal information, used data solely for research purposes, and employed anonymization techniques to prevent direct identification of individuals.

3) **Risk Minimization:** The researcher assessed the potential risks associated with the study and took measures to minimize them. This included ensuring that the study did not cause physical or psychological harm to participants and that the benefits of the research outweighed any potential risks.

4) **Fair Treatment:** The researcher ensured that participants from all backgrounds had the opportunity to participate in the study, avoiding any form of discrimination or bias. They transparently informed participants about the risks and benefits related to the study and ensured their understanding before obtaining consent.

5) **Data Management and Storage:** The researcher ensured the secure storage and management of data, complying with relevant data protection regulations. Data were used solely for research purposes and were destroyed according to regulations after completing the study.

3.5.2 Data Collection Procedures

To maintain scientific rigor, this study employed a range of data collection techniques, with the questionnaire survey serving as its primary method of data collection. These techniques explored the unique experiences and opinions of the respondents in addition to performing quantitative analysis on a sizable sample of data. The questionnaire survey is an effective data-gathering instrument that may collect quantitative data from a large sample in a systematic manner. As Ben et al. (2018) pointed out, the questionnaire survey allows researchers to quickly and effectively obtain data on the target group's attitudes, behaviors, and preferences through a carefully designed sequence of questions. This method not only improves the efficiency of data collection but also ensures the representativeness and comparability of the data. In designing the questionnaire, this study followed the advice of Bogler and Nir (2012), adhering to the principles of clarity, brevity, and bias-free language, to ensure that each question accurately reflects the research objectives and is easily understood by respondents. At the same time, this study adhered to questionnaire design guidelines (Gao et al., 2020), refining the phrasing of questions through pre-tests to ensure the reliability and validity of the questionnaire. The questionnaire survey in this study is one of the primary methods for collecting quantitative data in social science research, enabling the researcher to gather numerous comparable data points through standardized question formats. This echoes the view of Bogler and Nir (2012) that the questionnaire survey provides researchers with a structured framework for systematically collecting and analyzing data.

The data collection process for this study is as follows.

1) **Questionnaire Distribution:** After completing the reliability and validity tests and finalizing the questionnaire's content, this study distributed the questionnaire to the research subjects through an online survey platform. The questionnaire's introduction explained the purpose of the study, the confidentiality of the research, and the method for completing the questionnaire to facilitate cooperation from the research subjects in data collection.

2) **Data Collection:** This study set an end time for the survey in the electronic questionnaire to remind participants to complete the questionnaire content on time. To stimulate interest in participation, this study utilized the auxiliary functions of the questionnaire survey platform to offer lottery opportunities to those who completed the questionnaire survey. Prizes included platform points, red packets, and small gifts provided by the platform.

3) **Data Processing:** After completing the data collection, this study exported the questionnaire data from the data collection platform, organized and cleaned the data using an EXCEL spreadsheet, and removed invalid survey questionnaires. For reverse questions (R) in the questionnaire, data was processed using reverse scoring. After completing the data processing, data analysis software such as SPSS 27 was used to analyze the questionnaire and obtain research results. Throughout this process, this study ensured the privacy and security of the data.

4) **Collection Period:** To complete the questionnaire data collection, researchers conducted sampling work at five schools—Nanning Vocational and Technical University, Guangxi Construction Vocational and Technical College, Guangxi Communications Vocational and Technical College, Guangxi Vocational and Technical College, and Guangxi Health Vocational and Technical College—from December 2024 to March 2025, and collected data through an online questionnaire survey. After collecting the questionnaires, the researchers organized and cleaned the data, removing any invalid entries. The cleaned data was analyzed in April 2025.

3.6 Data Processing and Analysis

3.6.1 Data Processing Procedures

1) **Data Entry:** Input the data collected from the online questionnaire survey into Excel—Recoded categorical variables to ensure that the coding format for all answers was consistent.

2) **Data Cleaning:** Checked for missing values in the data. If missing values were found, either deleted the records containing missing values or used imputation methods to fill in the data. Identified any outliers in the data and determined whether they needed to be deleted or corrected based on the specific circumstances.

3) **Data Coding:** Converted single-choice questions in the questionnaire into numerical codes.

4) **Data Transformation:** For reverse-scored questions, applied reverse scoring to ensure that their direction was consistent with other items.

3.6.2 Data Analysis Methods

This study utilized SPSS 27 and AMOS 27 software to organize and analyze the data from the online questionnaire survey. The data analysis process included:

Descriptive Statistical Analysis

Descriptive statistical analysis is a fundamental statistical method that aims to summarize and describe a dataset by calculating and presenting indicators such as central tendency, dispersion, and shape of the distribution. This enables researchers and data analysts to quickly grasp the primary characteristics and fundamental patterns of the data (Granziera & Perera, 2019). This includes calculating measures such as the mean, median, and mode to reflect the central position of the data, as well as standard deviation, variance, and interquartile range to describe the data's variability. Additionally, it includes the creation of frequency distributions, percentages, histograms, and box plots to visually display the data distribution.

Analysis of Variance

Analysis of Variance (ANOVA) is a statistical method implemented through SPSS 27 software to compare whether the means between two or more groups differ significantly. This can be achieved through one-way ANOVA to compare the means of two or more independent samples, or factorial ANOVA to assess the impact of two or more factors on the sample means. Thus, ANOVA reveals statistical differences between groups, helping researchers gain a deeper understanding of the patterns of variation and potential relationships between variables (Kim & Huruta, 2022).

Reliability and Validity Analysis

Reliability and validity analysis are key steps in quantitative research, used to assess the quality and accuracy of measurement tools. Reliability and validity are two important indicators that measure the reliability and effectiveness of research tools. Through reliability and validity analysis, the accuracy and credibility of research results can be ensured, thereby providing a solid foundation for research conclusions.

Structural Equation Modeling

Structural Equation Modeling (SEM) is an advanced statistical analysis technique that was constructed and estimated using AMOS 27 software. It allows researchers to simultaneously test the relationships between multiple variables, including direct, indirect, and mediation effects (Ngobeni et al., 2022). SEM can reveal the structural relationships between latent and observed variables, as well as the causal paths between variables, thereby gaining a deeper understanding of the complex interaction mechanisms between variables and providing more precise statistical support for theoretical hypotheses.

3.7 Translation of Research Instruments

To ensure the accuracy of the translation, two English teachers from Nanning Vocational Technical University were invited to serve as translators. Their information is presented in Table 3.19.

Table 3.19 Translator Information

Name	Education Level	Affiliated Institution	English Professional Qualifications
Jiang Daili	Master's Degree Candidate	Nanning Vocational and Technical University	TEM8 (English Proficiency Test for English Majors, Level 8 Certificate), TOEIC (Test of English for International Communication) Certificate of Merit
Pan Keren	Doctoral Degree Candidate	Nanning Vocational and Technical University	TEM8 (English Proficiency Test for English Majors, Level 8 Certificate)

The translators followed the following steps to translate the questionnaire:

Preparation Phase: Before starting the translation, the researcher and the translators read the questionnaire together to ensure that the translators thoroughly understood the original questionnaire's design intent, research objectives, questionnaire structure, and the specific meaning of each item. At the same time, they determined the cultural background of the foreign research subjects to ensure that the translation fit the local cultural context.

Translation Phase: One translator translated the questionnaire, while the other was responsible for proofreading and reviewing it. After the translation was completed, it was submitted to the researcher for a second review.

Questionnaire Test: The translated questionnaire was distributed on a small scale to assess the research subjects' understanding and acceptance of the questionnaire, thereby ensuring the accuracy of its content.

3.8 Qualitative Research

The study employed semi-structured interviews with representative adult learners as interviewees. These interviewees covered different genders, ages, occupational backgrounds, and educational levels to ensure the diversity and representativeness of the research results. The interview content focused on the participation motives of adult learners and the factors influencing their continuous involvement in continuing education. Through detailed interview records and subsequent in-depth analysis, the study identified key factors affecting adult learners' continuous learning intention and explored the interrelationships among these factors. Through qualitative analysis, this study not only validated the hypotheses proposed in the quantitative research but also provided more targeted suggestions for optimizing continuing education at public vocational colleges.

Interview can reveal the specific experiences of adult learners participating in continuing education at public vocational colleges, the challenges they face, and the deeper factors influencing their continuous learning intention, which may not be fully captured in quantitative research.

Interview Sample Selection

This study employed semi-structured interviews to collect detailed first-hand data through direct dialogue with adult learners. The interviewees were selected using purposive sampling to ensure the diversity and representativeness of the sample. Five adult learners from five public vocational colleges in Nanning were selected for the interviews. The basic information of the interviewees is shown in Table 3.20:

Table 3.20 Basic Information of Interviewees

Interviewee	I	J	K	L	M
Gender	Male	Female	Male	Female	Male
Age	26	42	63	21	33
Marital Status	Single	Divorced	Widowed	Single	Married
Education	High school or below	Master's degree or above	Bachelor's degree	Associate degree	Bachelor's degree
Employment Status	Part-time work	Unemployed	Retired	Student, not working	Full-time employment
Monthly Income	Less than 3500 yuan	3500-4000 yuan	More than 5500 yuan	Less than 3500 yuan	4501-5500 yuan
Duration of participation	Less than 6 months	Less than 6 months	More than 2	1 to 2 years	6 months to 1 year

Interviewee	I	J	K	L	M
in continuing education at vocational colleges			years		
The purpose of participating in continuing education at vocational colleges.	To enhance skills and obtain certificates	Career change or job shift	Personal interest	To improve academic qualifications	Employer requirement
Institution of continuing education	Guangxi Construction Vocational and Technical College	Guangxi Health Vocational and Technical College	Guangxi Vocational and Technical College	Nanning Vocational and Technical University	Guangxi Communications Vocational and Technical College

This interview aimed to gain an in-depth understanding of the factors influencing continuous learning intention among adult learners in continuing education at vocational colleges in Nanning. The diversity of the sample ensured comprehensive and in-depth insights from learners with different backgrounds. For example, the sample included individuals of different genders, ages, marital statuses, and educational levels, which together formed a representative sample that reflected the broad characteristics of the target population. Through this multidimensional selection, the interview effectively captured the unique needs and challenges of different groups in continuing education.

Interview Guide Design

In this study, the design of the qualitative interviews revolved closely around the "continuous learning intention among adult learners," ensuring that the interview questions are highly relevant to the research objectives and comprehensively cover the key factors influencing adult learners' continuous learning intention. Through in-depth interviews, the researcher gained a deeper understanding of the specific experiences of adult learners participating in continuing education at vocational colleges, the challenges they face, and the underlying factors influencing their continuous learning intention.

The specific interview questions are shown in Table 3.21.

Table 3.21 Interview Guide

	Question	Probe
1	What are the subjective and objective reasons for your decision to participate in continuing education? 您选择参与继续教育的主观原因与客观原因分别是什么？	Can you tell me more specifically?

2	Are there any factors that motivate you to continue your education? 是否存在一些因素，激励您坚持参与继续教育？	Can you tell me more specifically?
3	Are there any factors that hinder your continued participation in continuing education? 是否存在一些因素，阻碍您继续参与继续教育？	Can you tell me more specifically?
4	After completing your current learning goals, would you consider participating in continuing education in the future? 在完成现阶段学习目标后，未来您是否还会选择参与继续教育？	Can you tell me more specifically?

Interview Process

In this interview, the researcher first contacted potential interviewees via telephone, email, or face-to-face, briefly introducing the background, purpose, and general content of the study, while emphasizing the voluntary nature of participation and the confidentiality of information. After confirming that the interviewee had a preliminary understanding of the study and was willing to participate, the researcher conducted a video interview with the interviewee using free online meeting software, with each interview lasting 30-40 minutes. With the interviewee consent, the researcher recorded the interview process using the software's recording function and transcribed and edited the interview content using the software's audio processing function. To protect the interviewees' privacy, interview data were presented anonymously, and all interview information was used with the interviewees' knowledge and authorization.

CHAPTER 4

RESEARCH RESULTS

4.1 Quantitative Data Analysis

This study's quantitative statistical analysis aimed to quantify and reveal the key factors influencing adult learners' continuous learning intention through systematic data collection and multivariate analysis techniques, thereby providing a solid empirical basis for constructing a relevant model. Through quantitative analysis, this study not only identified the key factors affecting learning intentions and their direction of influence but also provided data support for subsequent model construction.

This study employed a variety of quantitative analysis methods. First, descriptive statistics of the sample's basic characteristics were calculated to gain an understanding of the overall situation of the study population. Subsequently, inferential statistical methods were used to compare differences between groups and to screen for key influencing factors preliminarily. Factor analysis was then conducted to explore potential structural dimensions, and structural equation modeling (SEM) was utilized to test the complex relationships between variables and theoretical hypotheses.

During the data analysis process, this study comprehensively utilized statistical software, including SPSS 27 and AMOS 27, to perform a full range of analyses, from descriptive statistics to complex model testing. Through quantitative indicators of path coefficients and model fit indices, the researcher could precisely assess the direct and indirect impact of each variable on learning intention, thereby providing objective data support for the subsequent proposal of the theoretical model. Moreover, cross-validation of key analysis results also ensure the robustness of the research conclusions.

4.1.1 Sample's Demographic Characteristics

Demographic characteristics, which typically refer to variables that describe the basic background information of individuals, are analyzed to help researchers understand the elemental composition of the sample, determine whether the sample is representative, and control for the impact of sample characteristics on core variables.

The subjects of this questionnaire survey were adult learners from five schools: Nanning Vocational and Technical University, Guangxi Construction Vocational and Technical College, Guangxi Communications Vocational and Technical College, Guangxi Vocational and Technical College, and Guangxi Health Vocational and Technical College. The research data were collected through the online questionnaire survey platform "Wenjuanxing." The survey was conducted in March 2025, and a total of 413 valid questionnaires were collected. The collected data were statistically analyzed and frequency analyzed using data analysis software, describing the sample in terms of gender, age, marital status, education level, employment status, monthly income, duration and purpose of participating are shown as Table 4.1. This analysis enabled an understanding of the demographic characteristics of the sample and ensure its representativeness.

Table 4.1 Demographic Characteristics of the Sample

Question	Option	Frequency	Percentage (%)	Cumulative Percentage (%)
Gender	Male	190	46	46
	Female	223	54	100
Age	18-25 years old	90	21.79	21.79
	36-35 years old	146	35.35	57.14
	36-45 years old	104	25.18	82.32
	46-60 years old	48	11.62	93.95
	Over 60	25	6.05	100
Marital Status	Single	141	34.14	34.14
	Married	233	56.42	90.56
	Divorced	25	6.05	96.61
	Widowed	14	3.39	100
Education	High school or below	66	15.98	15.98
	Associate degree	195	47.22	63.2
	Bachelor's degree	119	28.81	92.01
	Master's degree or above	33	7.99	100
Employment Status	Student, not working	76	18.4	18.4
	Full-time employment	206	49.88	68.28
	Part-time work	69	16.71	84.99
	Unemployed	51	12.35	97.34
	Retired	11	2.66	100

Question	Option	Frequency	Percentage (%)	Cumulative Percentage (%)
Monthly Income	Less than 3500 yuan	106	25.67	25.67
	3500-4500 yuan	151	36.56	62.23
	4501-5500 yuan	98	23.73	85.96
	More than 5500 yuan	58	14.04	100
Duration of participation in continuing education at public vocational college	Less than 6 months	124	30.02	30.02
	6 months to 1 year	160	38.74	68.77
	1 to 2 years	92	22.28	91.04
	More than 2 years	37	8.96	100
Purpose of participating in continuing education at public vocational college.	To improve academic qualifications	126	30.51	30.51
	To enhance skills and obtain certificates	160	38.74	69.25
	Employer requirement	62	15.01	84.26
	Personal interest	36	8.72	92.98
	Career change or job shift	21	5.08	98.06
	Other	8	1.94	100
Total		413	100	100

Among adult learners participating in continuing education at public vocational colleges, the proportion of females is slightly higher than that of males, reaching 54.00%. In terms of age distribution, the group aged 26-35 years old has the highest proportion, at 35.35%. Individuals in this age group are typically in the middle stage of

their career development and have a more urgent need to enhance their skills and obtain certificates. Additionally, young learners aged 18-25 years old also make up a particular proportion, indicating that continuing education at public vocational colleges has a certain appeal to the younger demographic.

Married individuals have the highest proportion among adult learners participating in continuing education, at 56.42%. This may be related to the emphasis that married people place on their career development and considerations regarding family economic responsibilities. The unmarried group also constitutes a significant proportion, indicating that continuing education is equally attractive for the career planning and development of unmarried individuals. In terms of educational background, those with an associate degree have the highest proportion, at 47.22%, indicating that continuing education at public vocational colleges plays a significant role in enhancing the academic qualifications and skills of learners at the associate level. Meanwhile, learners with a high school diploma or lower education level also make up a particular proportion, indicating that continuing education provides opportunities for further advancement for those with lower educational backgrounds.

Full-time working learners have the highest proportion among those participating in continuing education, at 49.88%, indicating a significant demand for continuing education among employed individuals, possibly to enhance job skills, adapt to career development, or meet the requirements for career advancement. The student group also constitutes a particular proportion, demonstrating the importance of continuing education in career planning during the student stage. In terms of monthly income, learners with a monthly income of 3500-4500 yuan have the highest proportion, at 36.56%. Learners at this income level may be at a critical stage of career development, with a more urgent need to enhance their skills and academic qualifications to secure better career opportunities and income increases.

The duration of participation in continuing education is highest for learners who have been involved for 6 months to 1 year, at 38.74%. This suggests that most learners opt to complete continuing education courses within a relatively short period, likely to enhance their skills or meet specific job requirements quickly. The primary purpose of participating in continuing education is to enhance skills and obtain certificates, accounting for 38.74% of the participants. This indicates that learners have the most urgent need for skill enhancement and also reflects the key role of continuing education at public vocational colleges in meeting market demands and enhancing personal competitiveness. Academic advancement is also a significant motivation for participation, with a proportion of 30.51%, indicating that academic qualifications are crucial for career development.

4.1.2 Reliability and Validity Analysis

Reliability Analysis

Reliability analysis, also known as reliability testing, is an examination of the stability, consistency, and reliability of measurement results. To ensure the accuracy of the measurement results, it is necessary to conduct a reliability analysis of the valid data in the questionnaire before proceeding with further analysis. In social science research, Cronbach's α coefficient is commonly used for this purpose. Generally speaking, a reliability coefficient above 0.9 indicates excellent reliability, between 0.8 and 0.9 is

considered good, between 0.7 and 0.8 is acceptable, and below 0.6 suggests that revisions are needed.

The reliability test results for the formal measurement in this study are shown in Table 4.2.

Table 4.2 Reliability Test Results for the Formal Measurement

Variable	No. of Items	N	Coefficient of Cronbach's α
Self-efficacy (SE)	5	413	0.897
Learning Motivation (LM)	4		0.853
Social Support (SS)	5		0.887
Subjective Norms (SN)	5		0.874
Learning Costs (LC)	5		0.888
Continuous Learning Intention (CLI)	5		0.869

From Table 4.2, it can be seen that the Cronbach α coefficients for all dimensions exceed 0.8, indicating that the research data are of high quality and suitable for further analysis. The detailed item-total statistics for each dimension are shown in Table 4.3.

Table 4.3 Reliability Test Results for Each Item in the Formal Measurement

Variable	Item	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Self-Efficacy (SE)	SE1	0.757	0.872	0.897
	SE2	0.719	0.88	
	SE3	0.734	0.876	
	SE4	0.766	0.869	
	SE5	0.754	0.872	
Learning Motivation (LM)	LM1	0.704	0.809	0.853
	LM2	0.697	0.812	
	LM3	0.698	0.812	
	LM4	0.68	0.82	
Social Support (SS)	SS1	0.69	0.871	0.887
	SS2	0.773	0.851	
	SS3	0.747	0.857	
	SS4	0.68	0.872	
	SS5	0.745	0.858	

Variable	Item	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Subjective Norms (SN)	SN1	0.734	0.84	0.874
	SN2	0.711	0.846	
	SN3	0.674	0.855	
	SN4	0.7	0.849	
	SN5	0.704	0.848	
Learning Costs (LC)	LC1	0.722	0.866	0.888
	LC2	0.728	0.865	
	LC3	0.72	0.866	
	LC4	0.735	0.863	
	LC5	0.74	0.862	
Continuous Learning Intention (CLI)	CLI1	0.692	0.841	0.869
	CLI2	0.661	0.848	
	CLI3	0.676	0.846	
	CLI4	0.738	0.829	
	CLI5	0.705	0.839	

From Table 4.3, it can be seen that the reliability coefficients for all dimensions exceed 0.8, indicating that the reliability of the research data is very high. Regarding the "Cronbach's α if item deleted," the reliability coefficient does not significantly increase after the deletion of any item, suggesting that the items should not be removed. For the "Corrected Item-Total Correlation (CITC) values," the CITC values for all items are greater than 0.4, indicating a good correlation among the items and, consequently, a satisfactory level of reliability. In summary, the reliability coefficients for the research data are above 0.8, indicating that the data possess high reliability and are suitable for further analysis.

Validity Analysis

Bartlett's test of sphericity

Validity refers to the degree to which a test or scale tool can accurately measure the psychological and behavioral characteristics it is intended to measure, that is, the accuracy and reliability of the test results. Generally speaking, the smaller the significance level of Bartlett's test of sphericity ($P < 0.05$), the more likely it is that there are meaningful relationships among the original variables. The KMO value is used to compare the simple and partial correlation coefficients between items, with values ranging from 0 to 1. The criteria for suitability for factor analysis are as follows: greater than 0.9 is very suitable; 0.7-0.9 is suitable; 0.6-0.7 is somewhat suitable; 0.5-0.6 is less suitable; below 0.5 should be abandoned. Bartlett's test of sphericity is used to determine whether the correlation coefficients among items are statistically significant. If the significance is less than 0.05, it indicates that each item is suitable for factor

analysis. The validity test results are shown in Table 4.4.

Table 4.4 Validity Test Results for the Formal Measurement

KMO		0.936
Approx. Chi-Square		6922.356
Bartlett's Test of Sphericity	df	406
	p	0.000

Validity was verified using the KMO and Bartlett's tests. As shown in Table 4.4, the KMO value is 0.936. With a KMO value greater than 0.8, the research data is very suitable for extracting information (which indirectly reflects good validity) and can proceed with factor analysis.

Principal Component Analysis (PCA)

Factors with eigenvalues greater than 1 were extracted using the default method. Through principal component analysis of 29 items, 6 common factors were obtained, with a cumulative variance contribution rate of 72.071%, indicating an ideal extraction effect (Table 4.5).

Table 4.5 Results of Principal Component Analysis

Component	Initial Eigenvalue			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.564	36.427	36.427	10.564	36.427	36.427	3.678	12.683	12.683
2	2.496	8.605	45.033	2.496	8.605	45.033	3.664	12.636	25.319
3	2.206	7.606	52.638	2.206	7.606	52.638	3.518	12.131	37.45
4	1.884	6.497	59.135	1.884	6.497	59.135	3.444	11.875	49.325
5	1.605	5.536	64.671	1.605	5.536	64.671	2.935	10.12	59.446
6	1.338	4.613	69.285	1.338	4.613	69.285	2.853	9.839	69.285
7	0.64	2.207	71.491						
8	0.552	1.903	73.395						
9	0.521	1.796	75.191						
10	0.494	1.703	76.894						
11	0.478	1.647	78.54						
12	0.473	1.632	80.173						
13	0.445	1.535	81.708						
14	0.435	1.499	83.207						

Component	Initial Eigenvalue			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
15	0.428	1.476	84.683						
16	0.413	1.425	86.107						
17	0.38	1.312	87.419						
18	0.377	1.3	88.720						
19	0.371	1.28	90.000						
20	0.359	1.24	91.239						
21	0.342	1.179	92.418						
22	0.326	1.125	93.543						
23	0.317	1.094	94.637						
24	0.312	1.075	95.711						
25	0.279	0.964	96.675						
26	0.269	0.927	97.602						
27	0.249	0.859	98.461						
28	0.227	0.782	99.243						
29	0.22	0.757	100						

Factor Rotation

To enhance the interpretability of factor variables, factor rotation can be used to integrate original variables into a small number of factors. If the actual meaning of the factors is unclear, it will hinder subsequent analysis. Factor rotation can ensure that a variable has relatively high loadings on as few factors as possible, thereby making the extracted factors more interpretable. The rotated factor loading matrix is shown in Table 4.6.

Table 4.6 Rotated Component Matrix

	Component					
	1	2	3	4	5	6
SE1	0.812	-0.115	0.11	0.088	0.145	0.074
SE2	0.813	-0.136	0.077	0.041	0.049	0.078
SE3	0.762	-0.126	0.162	0.19	0.157	0.092
SE4	0.815	-0.097	0.148	0.082	0.159	0.104

	Component					
	1	2	3	4	5	6
SE5	0.819	-0.098	0.064	0.16	0.118	0.055
LM1	0.095	-0.143	0.197	0.215	0.153	0.753
LM2	0.138	-0.151	0.197	0.151	0.122	0.76
LM3	0.107	-0.198	0.166	0.146	0.201	0.742
LM4	0.051	-0.029	0.132	0.084	0.153	0.815
SS1	0.091	-0.108	0.763	0.1	0.175	0.12
SS2	0.179	-0.181	0.782	0.165	0.104	0.19
SS3	0.172	-0.164	0.748	0.165	0.193	0.171
SS4	0.029	-0.113	0.748	0.174	0.193	0.106
SS5	0.161	-0.197	0.747	0.155	0.147	0.197
SN1	0.117	-0.064	0.163	0.79	0.167	0.117
SN2	0.105	-0.105	0.119	0.796	0.184	0.019
SN3	0.081	-0.052	0.09	0.758	0.134	0.179
SN4	0.155	-0.205	0.219	0.684	0.214	0.19
SN5	0.129	-0.188	0.162	0.764	0.037	0.147
LC1	-0.164	0.748	-0.158	-0.188	-0.175	-0.071
LC2	-0.14	0.759	-0.171	-0.161	-0.141	-0.124
LC3	-0.087	0.781	-0.119	-0.056	-0.2	-0.116
LC4	-0.111	0.796	-0.124	-0.102	-0.128	-0.109
LC5	-0.094	0.819	-0.128	-0.069	-0.101	-0.098
CLI1	0.186	-0.159	0.199	0.172	0.688	0.217
CLI2	0.146	-0.153	0.155	0.123	0.764	0.111
CLI3	0.172	-0.313	0.281	0.241	0.544	0.236
CLI4	0.245	-0.269	0.24	0.221	0.652	0.185
CLI5	0.102	-0.167	0.174	0.184	0.766	0.151

In this study, the varimax rotation method was used to rotate the factors, aiming to clarify the corresponding relationship between factors and research items.

As shown in Table 4.6, the absolute values of the factor loading coefficients corresponding to all research items are greater than 0.5. This indicates that each item has a significant corresponding relationship with its assigned factor, verifying the rationality of factor-item assignment and the structural validity of the scale.

4.1.3 Descriptive Statistical Analysis

Descriptive statistical analysis is capable of summarizing data and providing key statistics such as the central tendency and dispersion of the data. This study conducted statistical analysis on the means, standard deviations, and variances of each dimension of the scale to understand the statistical differences between items. The results of the descriptive statistical analysis are shown in Table 4.7.

Table 4.7 Results of Descriptive Statistical Analysis

Item	Mean	SD
LM1	3.235	1.106
LM2	3.409	1.072
LM3	3.329	1.127
LM4	3.567	1.03
Learning Motivation	3.385	0.904
SE1	3.346	1.121
SE2	3.62	0.947
SE3	3.366	1.077
SE4	3.387	1.064
SE5	3.504	1.03
Self-efficacy	3.445	0.882
SS2	3.329	1.129
SS3	3.32	1.134
SS4	3.588	1.068
SS5	3.346	1.149
Social Support	3.436	0.902
SN1	3.424	1.025
SN2	3.559	1.115
SN3	3.581	0.953

Item	Mean	SD
SN4	3.291	1.085
SN5	3.433	0.949
Subjective Norms	3.458	0.838
LC1	3.312	1.048
LC2	3.424	1.011
LC3	3.322	1.064
LC4	3.545	1.008
LC5	3.235	1.102
Learning Costs	3.368	0.871
CLI1	3.649	1.026
CLI2	3.663	0.991
CLI3	3.387	1.153
CLI4	3.378	1.157
CLI5	3.576	0.986
Continuous Learning Intention	3.531	0.862

In the descriptive statistical analysis, six key dimensions of adult learners' participation in continuing education at public vocational colleges in Nanning were assessed, including self-efficacy, learning motivation, social support, subjective norms, learning costs, and continuous learning intention. The mean for self-efficacy is 3.445, close to the midpoint, indicating that learners generally have a certain level of confidence in their abilities. The mean for learning motivation is 3.385, slightly lower than that for self-efficacy, suggesting that learners' overall motivation to learn is at a moderate level, with individual differences. The mean for social support is 3.436, close to the midpoint, indicating that learners receive a certain degree of support when participating in continuing education. The mean for subjective norms is 3.458, close to the midpoint, indicating that those around them somewhat influence learners, but this influence is not very pronounced. The mean for learning costs is 3.368, close to the midpoint, indicating that learners generally perceive learning costs to be at a moderate level. The mean for continuous learning intention is 3.531, slightly higher than the midpoint, indicating that learners have a certain willingness to continue participating in continuing education at public vocational colleges, although individual differences exist.

4.1.4 Analysis of Variance

Difference testing was conducted using independent samples t-tests, chi-square tests, and one-way analysis of variance to study differences between different dimensions. Based on the characteristics of the data, this study primarily employed independent samples t-tests and one-way analysis of variance to examine the impact and differences of various demographic variables on the research variables.

Analysis of Differences in Variables by Gender

Table 4.8 Analysis of Gender Differences in Variables

Variable	Category	Sample Size	Mean	SD	t	df	Sig.
LM	Male	190	3.35	0.92	-0.808	411	0.42
	Female	223	3.42	0.89			
SE	Male	190	3.31	0.93	-2.782	411	0.006**
	Female	223	3.56	0.83			
SS	Male	190	3.36	0.97	-1.606	377.405	0.109
	Female	223	3.5	0.84			
SN	Male	190	3.37	0.91	-2.047	371.584	0.041*
	Female	223	3.54	0.77			
LC	Male	190	3.4	0.88	0.721	411	0.471
	Female	223	3.34	0.86			
CLI	Male	190	3.43	0.91	-2.26	411	0.024*
	Female	223	3.62	0.81			

From Table 4.8, it can be seen that independent samples t-tests were used to investigate the differences in SE, LM, SS, SN, LC, and CLI based on Gender. The table shows that for LM, SS, and LC, the significance ($p > 0.05$) indicates no significant differences. However, for SE, SN, and CLI, the significance $p < 0.05$, indicating significant differences.

Analysis of Differences in Variables by Age

Table 4.9 Analysis of Age Differences in Variables

Variable	Category	Sample Size	Mean	SD	t	df
LM	18-25 years old	90	3.42	0.9	1.277	0.278
	26-35 years old	146	3.44	0.86		

Variable	Category	Sample Size	Mean	SD	t	df
	36-45 years old	104	3.42	0.91		
	46-60 years old	48	3.25	0.95		
	Over 60	25	3.06	1.05		
SE	18-25 years old	90	3.51	0.89	2.791	0.026*
	26-35 years old	146	3.58	0.82		
	36-45 years old	104	3.38	0.9		
	46-60 years old	48	3.22	0.91		
	Over 60	25	3.11	0.99		
SS	18-25 years old	90	3.54	0.91	6.108	0.000**
	26-35 years old	146	3.63	0.82		
	36-45 years old	104	3.34	0.84		
	46-60 years old	48	3.13	0.94		
	Over 60	25	2.9	1.12		
SN	18-25 years old	90	3.5	0.88	2.546	0.039*
	26-35 years old	146	3.58	0.77		
	36-45 years old	104	3.41	0.78		
	46-60 years old	48	3.24	0.94		
	Over 60	25	3.17	0.97		
LC	18-25 years old	90	3.31	0.83	3.267	0.012*
	26-35 years old	146	3.23	0.9		
	36-45 years old	104	3.41	0.81		
	46-60 years old	48	3.57	0.94		
	Over 60	25	3.8	0.8		

Variable	Category	Sample Size	Mean	SD	t	df
CLI	18-25 years old	90	3.61	0.87	4.311	0.002**
	26-35 years old	146	3.67	0.82		
	36-45 years old	104	3.5	0.8		
	46-60 years old	48	3.31	0.89		
	Over 60	25	3.01	1		

From Table 4.9, it can be seen that one-way analysis of variance was used to investigate the differences in SE, LM, SS, SN, LC, and CLI based on Age. The table shows that for LM, the significance ($p > 0.05$) indicates no significant differences. However, for SE, SS, SN, LC, and CLI, the significance ($p < 0.05$) indicates significant differences.

Analysis of Differences in Variables by Marital Status

Table 4.10 Analysis of Differences in Variables by Marital Status

Variable	Category	Sample Size	Mean	SD	t	df
LM	Single	141	3.42	0.91	0.831	0.477
	Married	233	3.39	0.89		
	Divorced	25	3.28	1.06		
	Widowed	14	3.05	0.8		
SE	Single	141	3.52	0.87	1.592	0.191
	Married	233	3.44	0.86		
	Divorced	25	3.26	0.97		
	Widowed	14	3.06	1.09		
SS	Single	141	3.46	0.87	3.241	0.022*
	Married	233	3.49	0.88		
	Divorced	25	3.08	1.02		

Variable	Category	Sample Size	Mean	SD	t	df
	Widowed	14	2.91	1.13		
SN	Single	141	3.38	0.8	3.371	0.019*
	Married	233	3.56	0.83		
	Divorced	25	3.19	1		
	Widowed	14	3.09	0.91		
LC	Single	141	3.33	0.88	0.729	0.535
	Married	233	3.36	0.87		
	Divorced	25	3.54	0.89		
	Widowed	14	3.59	0.9		
CLI	Single	141	3.63	0.87	2.723	0.044*
	Married	233	3.52	0.83		
	Divorced	25	3.28	1.01		
	Widowed	14	3.07	0.99		

From Table 4.10, it can be seen that one-way analysis of variance was used to investigate the differences in SE, LM, SS, SN, LC, and CLI based on Marital Status. The table shows that for SE, LM, and LC, the significance ($p > 0.05$) indicates no significant differences. However, for SS, SN, and CLI, the significance $p < 0.05$, indicating significant differences.

Analysis of Differences in Variables by Education Level

Table 4.11 Analysis of Differences in Variables by Education Level

Variable	Category	Sample Size	Mean	SD	t	df
LM	High school or below	66	3.53	0.89	2.683	0.046*
	Associate degree	195	3.44	0.89		
	Bachelor's degree	119	3.31	0.92		

Variable	Category	Sample Size	Mean	SD	t	df
	Master's degree or above	33	3.05	0.93		
SE	High school or below	66	3.67	0.81	3.623	0.013*
	Associate degree	195	3.46	0.84		
	Bachelor's degree	119	3.41	0.91		
	Master's degree or above	33	3.06	1.05		
SS	High school or below	66	3.62	0.89	4.158	0.006**
	Associate degree	195	3.45	0.88		
	Bachelor's degree	119	3.44	0.9		
	Master's degree or above	33	2.95	0.95		
SN	High school or below	66	3.54	0.82	2.512	0.058
	Associate degree	195	3.5	0.8		
	Bachelor's degree	119	3.44	0.86		
	Master's degree or above	33	3.1	0.94		
LC	High school or below	66	3.19	0.95	1.167	0.322
	Associate degree	195	3.38	0.86		
	Bachelor's degree	119	3.43	0.84		
	Master's degree or above	33	3.45	0.9		
CLI	High school or below	66	3.67	0.91	5.64	0.001**
	Associate degree	195	3.62	0.83		
	Bachelor's degree	119	3.44	0.82		
	Master's degree or above	33	3.03	0.94		

From Table 4.11, it can be seen that one-way analysis of variance was used to investigate the differences in SE, LM, SS, SN, LC, and CLI based on Education Level. The table shows that for SN and LC, the significance ($p > 0.05$) indicates no significant

differences. However, for SE, LM, SS, and CLI, the significance ($p < 0.05$) indicates significant differences.

Analysis of Differences in Variables by Employment Status

Table 4.12 Analysis of Differences in Variables by Employment Status

Variable	Category	Sample Size	Mean	SD	t	df
LM	Student, not working	76	3.33	0.83	2.611	0.035*
	Full-time employment	206	3.31	0.92		
	Part-time work	69	3.66	0.87		
	Unemployed	51	3.47	0.89		
	Retired	11	3.05	1.11		
SE	Student, not working	76	3.36	0.86	0.753	0.556
	Full-time employment	206	3.45	0.91		
	Part-time work	69	3.57	0.79		
	Unemployed	51	3.44	0.86		
	Retired	11	3.18	1.21		
SS	Student, not working	76	3.52	0.87	2.984	0.019*
	Full-time employment	206	3.35	0.89		
	Part-time work	69	3.72	0.84		
	Unemployed	51	3.38	0.9		
	Retired	11	3.02	1.32		
SN	Student, not working	76	3.5	0.77	3.557	0.007**
	Full-time employment	206	3.42	0.85		
	Part-time work	69	3.71	0.77		
	Unemployed	51	3.33	0.87		
	Retired	11	2.84	1.02		
LC	Student, not working	76	3.35	0.81	1.544	0.189
	Full-time employment	206	3.44	0.88		

Variable	Category	Sample Size	Mean	SD	t	df
	Part-time work	69	3.14	0.88		
	Unemployed	51	3.42	0.83		
	Retired	11	3.36	1.11		
CLI	Student, not working	76	3.59	0.76	2.601	0.036*
	Full-time employment	206	3.48	0.84		
	Part-time work	69	3.78	0.86		
	Unemployed	51	3.39	0.95		
	Retired	11	3.16	1.22		

From Table 4.12, it can be seen that one-way analysis of variance was used to investigate the differences in SE, LM, SS, SN, LC, and CLI based on Employment Status. The table shows that for SE and LC, the significance ($p > 0.05$) indicates no significant differences. However, for LM, SS, SN, and CLI, the significance ($p < 0.05$) indicates significant differences.

Analysis of Differences in Variables by Monthly Income

Table 4.13 Analysis of Differences in Variables by Monthly Income

Variable	Category	Sample Size	Mean	SD	t	df
LM	Less than 3500 yuan	106	3.28	0.93	3.964	0.008**
	3500-4500 yuan	151	3.26	0.87		
	4501-5500 yuan	98	3.53	0.88		
	More than 5500 yuan	58	3.65	0.9		
SE	Less than 3500 yuan	106	3.34	0.93	4.537	0.004**
	3500-4500 yuan	151	3.34	0.89		
	4501-5500 yuan	98	3.52	0.79		
	More than 5500 yuan	58	3.79	0.85		
SS	Less than 3500 yuan	106	3.38	0.93	2.444	0.064

Variable	Category	Sample Size	Mean	SD	t	df
	3500-4500 yuan	151	3.34	0.94		
	4501-5500 yuan	98	3.5	0.82		
	More than 5500 yuan	58	3.69	0.85		
SN	Less than 3500 yuan	106	3.32	0.85	4.166	0.006**
	3500-4500 yuan	151	3.4	0.85		
	4501-5500 yuan	98	3.51	0.81		
	More than 5500 yuan	58	3.77	0.77		
LC	Less than 3500 yuan	106	3.51	0.91	1.984	0.116
	3500-4500 yuan	151	3.39	0.87		
	4501-5500 yuan	98	3.23	0.8		
	More than 5500 yuan	58	3.28	0.9		
CLI	Less than 3500 yuan	106	3.47	0.88	2.895	0.035*
	3500-4500 yuan	151	3.43	0.87		
	4501-5500 yuan	98	3.59	0.83		
	More than 5500 yuan	58	3.8	0.83		

From Table 4.13, it can be seen that one-way analysis of variance was used to investigate the differences in SE, LM, SS, SN, LC, and CLI based on Monthly Income. The table shows that for SS and LC, the significance ($p > 0.05$) indicates no significant differences. However, for SE, LM, SN, and CLI, the significance ($p < 0.05$) indicates significant differences.

Analysis of Differences in Variables by Duration of Participation in Continuing Education

Table 4.14 Analysis of Differences in Variables by Duration of Participation in Continuing Education

Variable	Category	Sample Size	Mean	SD	t	df
LM	Less than 6 months	124	3.31	0.92	1.005	0.39
	6 months to 1 year	160	3.35	0.93		
	1 to 2 years	92	3.51	0.86		
	More than 2 years	37	3.45	0.84		
SE	Less than 6 months	124	3.49	0.93	0.624	0.6
	6 months to 1 year	160	3.37	0.89		
	1 to 2 years	92	3.51	0.86		
	More than 2 years	37	3.44	0.72		
SS	Less than 6 months	124	3.32	0.98	2.939	0.033*
	6 months to 1 year	160	3.37	0.9		
	1 to 2 years	92	3.66	0.78		
	More than 2 years	37	3.52	0.86		
SN	Less than 6 months	124	3.36	0.91	3.117	0.026*
	6 months to 1 year	160	3.38	0.84		
	1 to 2 years	92	3.66	0.76		
	More than 2 years	37	3.61	0.67		
LC	Less than 6 months	124	3.47	0.87	1.544	0.203
	6 months to 1 year	160	3.39	0.88		
	1 to 2 years	92	3.24	0.81		
	More than 2 years	37	3.23	0.91		

Variable	Category	Sample Size	Mean	SD	t	df
CLI	Less than 6 months	124	3.38	0.9	2.974	0.032*
	6 months to 1 year	160	3.51	0.87		
	1 to 2 years	92	3.67	0.77		
	More than 2 years	37	3.76	0.86		

From Table 4.14, it can be seen that one-way analysis of variance was used to investigate the differences in SE, LM, SS, SN, LC, and CLI based on the Duration of Participation in Continuing Education at public vocational colleges. The table shows that for SE, LM, and LC, the significance ($p > 0.05$) indicates no significant differences. However, for SS, SN, and CLI, the significance $p < 0.05$, indicating significant differences.

Analysis of Differences in Variables by Purpose of Participation in Continuing Education

Table 4.15 Analysis of Differences in Variables by Purpose of Participation in Continuing Education

Variable	Category	Sample Size	Mean	SD	t	df
LM	To improve academic qualifications	126	3.53	0.82	2.455	0.033*
	To enhance skills and obtain certificates	160	3.37	0.92		
	Employer requirement	62	3.19	0.97		
	Personal interest	36	3.54	0.85		
	Career change or job shift	21	3	0.99		
	Other	8	3.09	0.93		
SE	To improve academic qualifications	126	3.61	0.81	2.845	0.015*
	To enhance skills and obtain certificates	160	3.44	0.89		
	Employer requirement	62	3.26	0.93		
	Personal interest	36	3.51	0.81		
	Career change or job shift	21	2.97	0.92		

Variable	Category	Sample Size	Mean	SD	t	df
	Other	8	3.23	1.08		
SS	To improve academic qualifications	126	3.57	0.76	2.857	0.015*
	To enhance skills and obtain certificates	160	3.39	0.91		
	Employer requirement	62	3.3	1.01		
	Personal interest	36	3.71	0.84		
	Career change or job shift	21	2.97	1.08		
	Other	8	3.23	1.11		
SN	To improve academic qualifications	126	3.56	0.76	3.552	0.004**
	To enhance skills and obtain certificates	160	3.52	0.83		
	Employer requirement	62	3.26	0.93		
	Personal interest	36	3.54	0.74		
	Career change or job shift	21	3.01	1.01		
	Other	8	2.83	0.74		
LC	To improve academic qualifications	126	3.25	0.85	1.597	0.16
	To enhance skills and obtain certificates	160	3.39	0.87		
	Employer requirement	62	3.53	0.89		
	Personal interest	36	3.21	0.92		
	Career change or job shift	21	3.6	0.87		
	Other	8	3.63	0.72		
CLI	To improve academic qualifications	126	3.62	0.79	1.84	0.104
	To enhance skills and obtain certificates	160	3.55	0.85		
	Employer requirement	62	3.42	1		

Variable	Category	Sample Size	Mean	SD	t	df
	Personal interest	36	3.66	0.69		
	Career change or job shift	21	3.1	1.06		
	Other	8	3.28	0.87		

From Table 4.15, it can be seen that one-way analysis of variance was used to investigate the differences in SE, LM, SS, SN, LC, and CLI based on the Purpose of Participation in Continuing Education at public vocational colleges. The table shows that for LC and CLI, the significance ($p > 0.05$) indicates no significant differences. However, for SE, LM, SS, and SN, the significance $p < 0.05$, indicating significant differences.

4.1.5 Measurement Model Analysis

Before conducting the structural model test, it is necessary to analyze the measurement model first. By constructing, analyzing, and refining the measurement model, the fit of the structural model can be improved, thereby providing a more accurate description of the results of the structural model analysis. This study employed confirmatory factor analysis to complete the analysis of the measurement model, and then utilized maximum likelihood estimation and other methods to assess composite reliability, average variance extracted, correlation coefficients between variables, and the significance of standardized factor loadings. These values were used to test the convergent and discriminant validity of the measurement model. The specific measurement model established is shown in Figure 4.1.

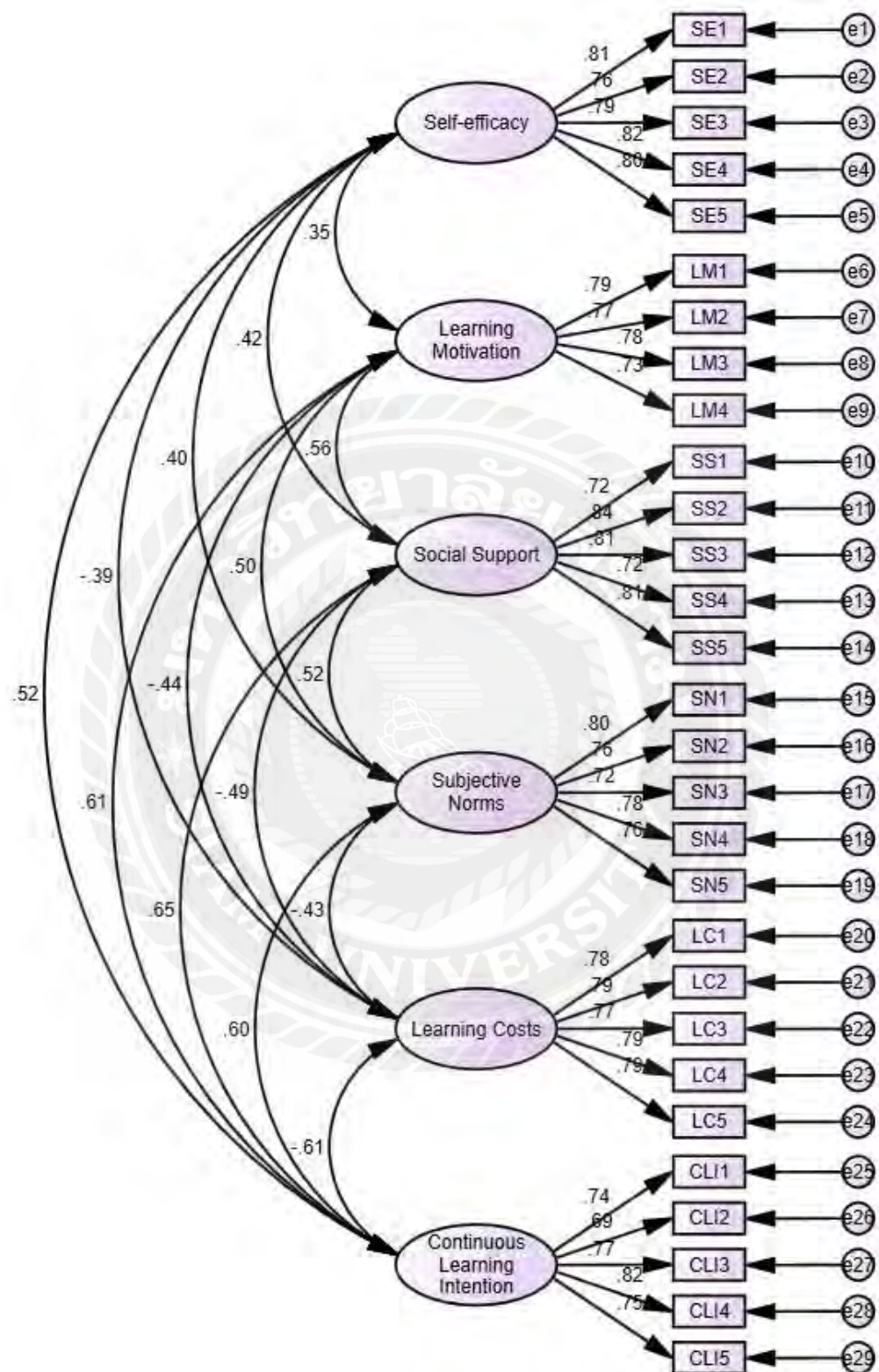


Figure 4.1 Measurement Model

Model Fit Analysis

The first step in confirmatory factor analysis is to determine whether the fit of the measurement model meets the criteria. Model fit reflects the degree of correspondence between the research model and the collected data; the higher the fit, the more closely the research model aligns with the actual data. When the model fit does not meet the criteria, the model needs to be revised. In structural equation modeling, multiple fit indices are typically used to assess the model's fit. Based on the functions of the fit indices, they can be categorized into three types: absolute fit indices, relative fit indices, and parsimony fit indices.

As shown in Table 4.13, the χ^2/df value is 1.369, which is less than 3; RMSEA is 0.030, which is below the criterion level of 0.08, indicating good fit; GFI is 0.924, AGFI is 0.909, NFI is 0.930, IFI is 0.980, (TLI) NNFI is 0.978, and CFI is 0.980, all of which meet excellent standards. All fit indices meet the general criteria, indicating good model fit.

Table 4.16 College Students ' Employment Ability Model Fitting Index

Index	Acceptable Value	Statistical Value	Fit Condition
CMIN	-	495.656	-
DF	-	362	-
CMIN/DF	<3	1.369	Good
GFI	>0.90	0.924	Good
AGFI	>0.90	0.909	Good
RMSEA	<0.08	0.030	Good
NFI	>0.90	0.930	Good
ILI	>0.90	0.980	Good
(TLI) NNFI	>0.90	0.978	Good
CFI	>0.90	0.980	Good

As shown in Table 4.16, the χ^2/df value is 1.369, which is less than 3; RMSEA is 0.030, which is below the criterion level of 0.08, indicating good fit; GFI is 0.924, AGFI is 0.909, NFI is 0.930, IFI is 0.980, (TLI) NNFI is 0.978, and CFI is 0.980, all of which meet excellent standards. All fit indices meet the general criteria, indicating good model fit.

Convergent Validity Analysis

Convergent validity's core function is to verify whether multiple observed indicators used to measure the same latent construct exhibit a statistically significant and sufficiently high correlation, thereby confirming that these indicators indeed jointly point to and reflect the same theoretical abstract concept. Standard indices for measuring convergent validity include standardized factor loadings, average variance extracted (AVE), and composite reliability (CR). Among them, standardized factor

loadings should be greater than 0.6; the value of average variance extracted (AVE) should be greater than 0.5; and when the composite reliability (CR) value is greater than 0.7, it indicates that the latent variable has good construct reliability. When all three of these indices meet the criteria, the convergent validity of the latent variable is high, thereby enhancing the overall convergent validity of the measurement model.

Table 4.17 Factor Load Coefficients

Divisor	Vari able	Non- standard load factor	S.E.	C.R.	P	Standardized load coefficient	CR	AVE
Learning	LM1	1				0.789		
Motivation (LM)	LM2	0.951	0.06	15.814	***	0.774	0.853	0.592
	LM3	1.013	0.063	16.042	***	0.785		
	LM4	0.862	0.058	14.839	***	0.73		
Self- efficacy (SE)	SE1	1				0.809		
	SE2	0.794	0.047	16.73	***	0.76		
	SE3	0.94	0.053	17.62	***	0.791	0.897	0.636
	SE4	0.966	0.052	18.539	***	0.823		
	SE5	0.914	0.051	17.99	***	0.804		
Social Support (SS)	SS1	1				0.721		
	SS2	1.39	0.085	16.261	***	0.841		
	SS3	1.353	0.086	15.783	***	0.815	0.887	0.612
	SS4	1.119	0.081	13.876	***	0.715		
	SS5	1.365	0.087	15.727	***	0.812		
Subjective Norms (SN)	SN1	1				0.795		
	SN2	1.039	0.065	16.092	***	0.76		
	SN3	0.84	0.056	15.045	***	0.718	0.875	0.584
	SN4	1.043	0.063	16.686	***	0.784		
	SN5	0.888	0.055	16.153	***	0.762		

Divisor	Variable	Non-standard load factor	S.E.	C.R.	P	Standardized load coefficient	CR	AVE
Learning Costs (LC)	LC1	1				0.783	0.889	0.615
	LC2	0.973	0.058	16.771	***	0.79		
	LC3	1.001	0.061	16.331	***	0.772		
	LC4	0.968	0.058	16.73	***	0.788		
	LC5	1.057	0.063	16.709	***	0.787		
Continuous Learning Intention (CLI)	CLI1	1				0.744	0.869	0.571
	CLI2	0.902	0.065	13.765	***	0.695		
	CLI3	1.159	0.076	15.276	***	0.767		
	CLI4	1.244	0.076	16.389	***	0.821		
	CLI5	0.963	0.065	14.82	***	0.745		

The results shown in Table 4.17 indicate that all AVE values exceed 0.5, and all CR values exceed 0.7, indicating that the questionnaire structure model possesses good convergent validity.

Discriminant Validity Analysis

Discriminant validity, as an important dimension of construct validity, primarily ensures that the measurement tool can effectively distinguish between different theoretical constructs and that they exhibit low or no statistical correlation with each other. This includes cross-loadings, the Fornell-Larcker criterion, and the heterotrait-monotrait ratio (HTMT). This study employed the Fornell-Larcker criterion to assess discriminant validity, comparing the square root of each construct's AVE value with its correlation coefficients with other constructs to determine whether the constructs have achieved statistical distinction. The analysis results are shown in Table 4.18.

Table 4.18 Discrimination Validity

	LM	SE	SS	SN	LC	CLI
LM	0.77					
SE	0.304**	0.797				
SS	0.483**	0.368**	0.782			
SN	0.425**	0.351**	0.456**	0.764		
LC	-0.374**	-0.345**	-0.434**	-0.373**	0.784	
CLI	0.525**	0.451**	0.568**	0.524**	-0.530**	0.756

Note: Diagonal black bold numbers are AVE square root values

From Table 4.16, it can be seen that the correlation coefficients between the latent variables of the measurement model indicate that the square root of the average variance extracted (AVE) values for each latent variable is greater than their correlation coefficients with other latent variables. This result indicates that the measurement model has high discriminant validity, with distinct differences and distinction significant correlation with a correlation coefficient of 0.525, indicating a positive correlation between them results, it can be concluded that the measurement model of factors influencing adult learners' continuous learning intention in vocational education at higher public vocational colleges exhibits a high degree of correspondence with the actual data. The reliability and validity results are satisfactory. Based on this, this study establishes a structural model of adult learners' continuous learning intention, using the measurement model, and analyzes and tests the paths between the latent variables in the model to verify whether the research hypotheses proposed in this study, based on the hypothetical research model, are valid. The specific model is shown in Figure 4.2.

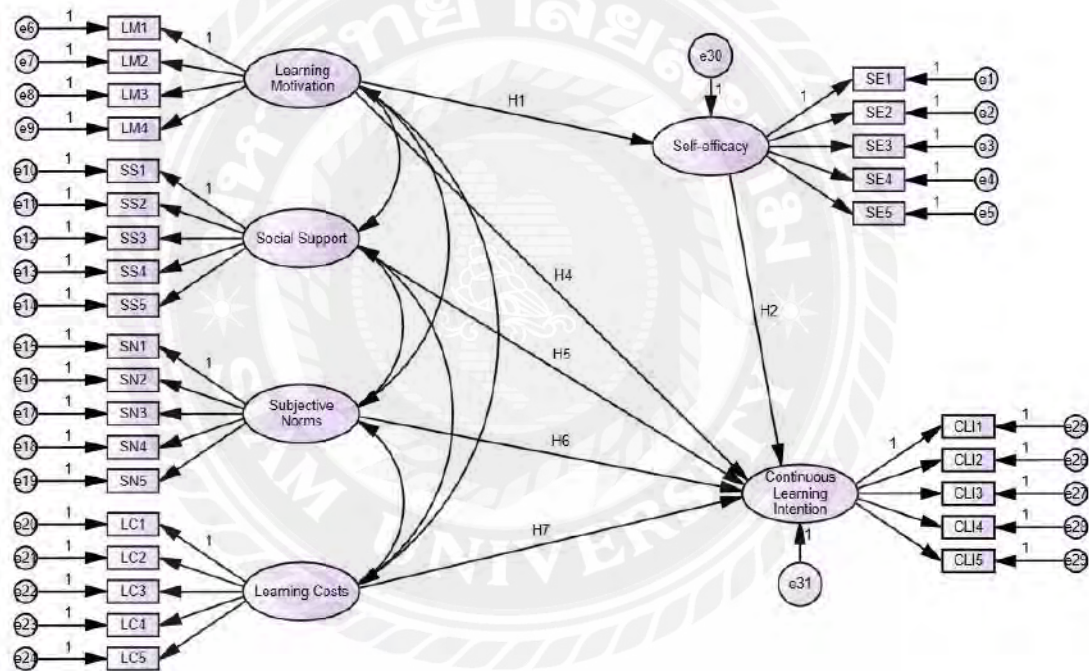


Figure 4.2 Structural Model Diagram

Model Fit Index Analysis

During the construction of the structural equation model, the first step is to conduct a fit test for the measurement model to determine whether the model can describe the relationship between observed variables and latent variables. Evaluating the fit of a model is a complex issue, and different fit indices focus on different aspects when evaluating a model. Therefore, it is generally believed that the quality of a model should not be judged by a single index but rather by a comprehensive evaluation using multiple indices. This study examined the model's fit by referring to three types of indices: absolute fit indices, relative fit indices, and parsimony fit indices. The absolute fit indices used are the chi-square to degrees of freedom ratio (χ^2/df), the root mean

square error of approximation (RMSEA), the goodness of fit index (GFI), the normed fit index (NFI), and the Tucker-Lewis index (TLI).

Table 4.19 Structural Equation Model Fitting Index

Index	Acceptable Value	Statistical value	Fit condition
CMIN	-	541.742	-
DF	-	365	-
CMIN/DF	<3	1.484	Good
GFI	>0.90	0.917	Good
AGFI	>0.90	0.902	Good
RMSEA	<0.08	0.034	Good
NFI	>0.90	0.924	Good
ILI	>0.90	0.974	Good
(TLI) NNFI	>0.90	0.971	Good
CFI	>0.90	0.974	Good

As shown in Table 4.19, the χ^2/df value is 1.484, which is less than 3; RMSEA is 0.034, which is below the criterion level of 0.08, indicating good fit; GFI is 0.917, AGFI is 0.892, NFI is 0.902, IFI is 0.960, (TLI) NNFI is 0.955, and CFI is 0.960, all of which meet excellent standards. All fit indices meet the general criteria, indicating good model fit.

Path Analysis

Direct Effect Test

The Pearson correlation coefficient can be used for an initial test of direct effects. Specifically, the Pearson correlation coefficient quantifies the strength and direction of the linear relationship between two continuous variables (with r values ranging from -1 to 1), providing an intuitive measure of direct effects.

Table 4.20 Pearson Correlation Analysis

	LM	SE	SS	SN	LC	CLI
LM	1					
SE	0.304**	1				
SS	0.483**	0.368**	1			
SN	0.425**	0.351**	0.456**	1		

	LM	SE	SS	SN	LC	CLI
LC	-0.374**	-0.345**	-0.434**	-0.373**	1	
CLI	0.525**	0.451**	0.568**	0.524**	-0.530**	1

* $p < 0.05$ ** $p < 0.01$

From Table 4.20, it can be seen that the correlation between SE, LM, SS, SN, LC, and CLI was analyzed using Pearson correlation coefficients to represent the strength of the relationships. The specific analysis shows that:

SE and CLI show a significant correlation with a correlation coefficient of 0.451, indicating a positive correlation between SE and CLI.

LM and CLI show a significant correlation with a correlation coefficient of 0.525, indicating a positive correlation between them.

SS and CLI show a significant correlation with a correlation coefficient of 0.568, indicating a positive correlation between SS and CLI.

SN and CLI show a significant correlation with a correlation coefficient of 0.524, indicating a positive correlation between SN and CLI.

LC and CLI show a significant correlation with a correlation coefficient of -0.530, indicating a negative correlation between LC and CLI.

More detailed results of the Pearson correlation coefficient analysis are shown in Table 4.21.

Table 4.21 Validation of Direct Effects between Variables

		SE	LM	SS	SN	LC	CLI
SE	Pearson Correlation	1	.304**	.368**	.351**	-.345**	.451**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000
	N	413	413	413	413	413	413
LM	Pearson Correlation	.304**	1	.483**	.425**	-.374**	.525**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000
	N	413	413	413	413	413	413
SS	Pearson Correlation	.368**	.483**	1	.456**	-.434**	.568**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000
	N	413	413	413	413	413	413
SN	Pearson Correlation	.351**	.425**	.456**	1	-.373**	.524**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000
	N	413	413	413	413	413	413
LC	Pearson Correlation	-.345**	-.374**	-.434**	-.373**	1	-.530**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000

		SE	LM	SS	SN	LC	CLI
CLI	N	413	413	413	413	413	413
	Pearson Correlation	.451**	.525**	.568**	.524**	-.530**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
	N	413	413	413	413	413	413

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

However, since the Pearson correlation coefficient analysis only reveals the association between variables and cannot determine the direction of causality, this study also used path analysis to test direct effects. The analysis results are shown in Table 4.22.

Table 4.22 Path Coefficient Analysis Results

Path	Path	β	Estimate	S.E.	C.R.	P	Result
H1	LM→SE	0.409	0.059	6.956	***	0.392	Supported
H2	SE→CLI	0.145	0.037	3.963	***	0.175	Supported
H4	LM→CLI	0.188	0.052	3.581	***	0.218	Supported
H5	SS→CLI	0.25	0.063	3.971	***	0.228	Supported
H6	SN→CLI	0.196	0.049	4.024	***	0.213	Supported
H7	LC→CLI	-0.230	0.046	-4.963	***	-0.252	Supported

When $P < 0.05$, the path is significant. In the case of a significant path, a positive coefficient indicates that the independent variable has a significant positive effect on the dependent variable.

From the table above, it can be seen that:

The standardized path coefficient between LM and SE is 0.392, with a C.R. value of 6.956, and the corresponding significance $P < 0.05$. Therefore, LM has a significant positive effect on SE, confirming the hypothesis.

The standardized path coefficient between SE and CLI is 0.175, with a C.R. value of 3.963, and a corresponding significance level of $P < 0.05$. Therefore, SE has a significant positive effect on CLI, confirming the hypothesis.

The standardized path coefficient between LM and CLI is 0.218, with a C.R. value of 3.581, and a corresponding significance level of $P < 0.05$. Therefore, LM has a significant positive effect on CLI, confirming the hypothesis.

The standardized path coefficient between SS and CLI is 0.228, with a C.R. value of 3.971, and a corresponding significance level of $P < 0.05$. Therefore, SS has a significant positive effect on CLI, confirming the hypothesis.

The standardized path coefficient between SN and CLI is 0.213, with a C.R. value of 4.024, and the corresponding significance $P < 0.05$. Therefore, SN has a significant positive effect on CLI, confirming the hypothesis.

The standardized path coefficient between LC and CLI is -0.252, with a C.R. value of -4.963, and a corresponding significance level of $P < 0.05$. Therefore, LC has a significant adverse effect on CLI, confirming the hypothesis.

Mediation Effect Test

The bootstrap method is a modern statistical approach to testing mediation effects through repeated sampling. It does not rely on strict assumptions such as data normality and constructs confidence intervals for mediation effects by repeatedly sampling with replacement from the original sample. If the 95% confidence interval does not include zero, it indicates a significant mediation effect. This method enhances the robustness and reliability of mediation effect testing. This study employed the bootstrap sampling method to conduct 5,000 samples for mediation testing, with the results presented in Table 4.23.

Table 4.23 Mediation Effect Test

Parameter	Type of effect	Estimate	SE	Lower	Upper	P
LM→SE→CLI	direct effect	0.188	0.057	0.086	0.309	0.000
	indirect effect	0.077	0.028	0.034	0.147	0.000
	total effect	0.265	0.082	0.119	0.448	0.000

If the path confidence interval does not include the number 0, it indicates that the path is significant. The mediation path PLM→SE→CLI is established. It can be concluded that the mediator SE plays a mediating role in the effect of the independent variable LM on CLI.

4.2 Qualitative Data Analysis

In this study, the qualitative analysis section further validates and contextualizes the quantitative research results through in-depth interviews and systematic thematic coding, providing richer background support and empirical evidence for constructing a model of adult learners' continuous learning intention. Interviews can reveal the specific experiences of adult learners participating in continuing education at public vocational colleges, the challenges they face, and the deeper factors influencing their continuous learning intention, which may not be fully captured in quantitative research.

Data Organization and Analysis

During the data analysis process, this study utilized MAXQDA software for thematic coding and word frequency analysis to ensure the systematic and transparent processing of data. Through software analysis, researcher was able to identify high-frequency keywords and themes intuitively, thereby providing a richer interpretation and background support for the quantitative research results.

After the interview execution phase was completed, the research team followed a systematic process to organize the data. First, all recorded content is transcribed verbatim into text files and preliminarily coded using MAXQDA software. During the

preliminary coding process, the researcher retained the originality of the respondents' language expressions, initially adopting an open coding strategy to mark keywords, recurring phrases, and potential themes in the text, thereby establishing a code library. After completing data organization, the research team used MAXQDA's hierarchical coding function to implement axial coding on the established initial code library. By continuously comparing and clustering, the dispersed open codes were merged into more explanatory axial categories. Subsequently, selective coding was applied, focusing on the core phenomenon of "adult learners' continuous learning intention," further to identify causal chains and situational conditions between axial categories, thereby constructing an integrated thematic analysis framework.

To facilitate the rapid visualization of high-frequency semantics, the study simultaneously generated a word cloud (Figure 4.3). This word cloud retained only meaningful content words, visually presenting the key concepts that respondents repeatedly mentioned in the interviews and providing clues for subsequent in-depth interpretation.



Figure 4.3 Word Cloud for Qualitative Analysis

Finally, a code-document matrix (Table 4.24) was constructed to systematically examine the distribution density and intersection patterns of different themes across various interview texts, thereby capturing group differences and case characteristics. Words were selected from the matrix that appear with a frequency exceeding 1.3%.

Table 4.24 Interview Document-Code Matrix

Dimension	Keyword	Frequency	Weighted %
Learning Motivation	Career Development	11	3.58%
	Skills	8	2.61%
	Competitiveness	7	2.28%
	Interest	6	1.95%
	Income	8	2.61%
	Certification	11	3.58%
Self-efficacy	Confidence	10	3.26%
	Ability	9	2.93%
	Persistence	8	2.61%
	Overcoming Difficulties	6	1.95%
	Sense of Achievement	5	1.63%
Social Support	Support	10	3.26%
	Help	5	1.63%
	Encouragement	8	2.61%
	Understanding	6	1.95%
Subjective Norms	Requirements	4	1.30%
	Expectations	6	1.95%
	Norms	4	1.30%
	Standards	5	1.63%
	Response	4	1.30%
Learning Costs	Costs	7	2.28%
	Time	10	3.26%
	Burden	4	1.30%
	Investment	5	1.63%
	Pressure	7	2.28%
	Loss	4	1.30%
Continuous Learning Intention	Planning	4	1.30%
	Willingness	9	2.93%
	Motivation	7	2.28%
	Goals	7	2.28%
	Perseverance	6	1.95%

Based on the interview results, it can be found that the interview data are consistent with the paths in the research model:

H1 (Learning Motivation→Self-Efficacy): Interviewees H and L emphasized how their positive attitude and intrinsic motivation towards learning significantly enhanced their self-efficacy. H mentioned that enjoying the learning process and aspiring to improve professional skills through learning made him feel more capable and confident in completing learning tasks. L stated that the desire to realize personal value through learning new knowledge enhanced her expectations and confidence in learning outcomes.

H2 (Self-Efficacy→Continuous learning intention): Interviewees I and K described how the sense of achievement and satisfaction gained during the learning process significantly strengthened their continuous learning intention. I mentioned that mastering each new skill motivated him to keep moving forward. At the same time, K expressed that the happiness and satisfaction after completing learning tasks gave him more motivation to explore deeper learning content.

H3 (Mediating Role of Self-Efficacy in the relationship between Learning Motivation and Continuous learning intention): All five interviewees emphasized the mediating role of self-efficacy between learning motivation and continuous learning intention. H and I mentioned that clear learning goals and positive learning outcomes enhanced their self-efficacy, which in turn propelled their continuous learning intention. J and K also noted that the sense of achievement and satisfaction gained from learning motivated them to set new learning goals and persist.

H4 (Learning Motivation→Continuous learning intention): Interviewees H and I reported that their learning motivation directly enhanced their continuous learning intention. H mentioned that to adapt to job changes and enhance career competitiveness, he aspired to achieve career development through learning new knowledge and skills, which motivated him to continue learning. I stated that with clear learning goals to improve skills and obtain certificates, he was driven to continue participating in continuing education.

H5 (Social Support→Continuous learning intention): Interviewees H, I, and K provided strong evidence that social support significantly enhanced their continuous learning intention. H mentioned that the support from his workplace and recognition from colleagues motivated him to persist in learning. I indicated that seeing friends succeed through continuing education also gave him tremendous motivation. K noted that the support and encouragement from his family gave him more confidence to continue learning.

H6 (Subjective Norms→Continuous learning intention): The narratives of interviewees H, I, and J supported the positive impact of subjective norms on the continuous learning intention. H mentioned that the requirements for certificates and skills in job advertisements made him realize the necessity of continuing education. I stated that seeing the requirements for relevant certificates in job advertisements prompted him to enhance his competitiveness through continuing education. J mentioned that seeing others successfully return to the workforce through continuing education also made her feel that continuing education was necessary.

H7 (Learning Costs→Continuous learning intention): Interviewees H, I, and J mentioned the negative impact of learning costs on the continuous learning intention. H expressed that the high tuition fees caused him economic pressure and sometimes made him consider giving up. I mentioned that the pressure of tuition and living expenses made the learning process difficult for him. J also noted that the economic burden of learning sometimes caused her anxiety.

4.3 Triangulation: Integrating Quantitative and Qualitative Data Analysis Results

Triangulation is a commonly used method in social science research, which integrates multiple data sources or research methods to enhance the consistency and reliability of research results. Its core value lies in reducing the limitations of a single method through multi-angle examination, thereby enhancing the validity and reliability of research conclusions. In this study, the researcher employed triangulation to integrate quantitative and qualitative data analysis results, aiming to provide a more comprehensive understanding of the factors influencing adult learners' continuous learning intention.

The implementation of triangulation in this study includes the following steps: First, the researcher conducted descriptive statistical analysis and hypothesis testing on the quantitative data to determine the relationships between variables and their significance levels; second, through qualitative interviews, the researcher collected detailed experiences and feelings of individuals and interpreted these experiences and feelings using thematic coding and content analysis; finally, the researcher compared the two sets of research results, checked their consistency, and explored possible reasons for any differences.

The results of triangulation in this study are shown in Table 4.25.

Table 4.25 Results of Triangulation

Hypothesis	Quantitative Result	Qualitative Result	Conclusion
H1: Learning motivation has a significant positive impact on self-efficacy.	Statistically Significant	H:... really enjoys the process of learning, finding it an excellent opportunity for self-improvement. I:... really likes learning new knowledge and believes in their ability to master it.	Supported
H2: Self-efficacy has a significant positive impact on continuous learning intention.	Statistically Significant	H:... can see the results of learning, and that sense of achievement and satisfaction drives them to keep striving. I:... whenever they master a new skill, that sense of accomplishment motivates them to keep moving forward.	Supported

Hypothesis	Quantitative Result	Qualitative Result	Conclusion
H3: Self-efficacy mediates the relationship between learning motivation and continuous learning intention.	Statistically Significant	I: ... hopes to enhance their skills through further education and obtain certifications... whenever they master a new skill, that sense of accomplishment motivates them to keep moving forward... if circumstances permit, they might choose to continue learning. K: ... whenever they complete a traditional Chinese painting or capture a beautiful photo through learning, they feel pleased and fulfilled. This joy and satisfaction give them more motivation to keep learning.	Supported
H4: Learning motivation has a significant positive impact on continuous learning intention.	Statistically Significant	H: ... aspires to better adapt to changes in work by acquiring new knowledge and skills... hopes to gradually improve their professional and managerial capabilities in the coming years. J: ... hopes to re-enter the workforce by enhancing their skills and obtaining certifications... their current primary goal is to return to the workforce as soon as possible to address financial issues, with the possibility of continuing education later depending on the situation.	Supported
H5: Social support has a significant positive impact on continuous learning intention.	Statistically Significant	H:... their employer not only provides learning opportunities but also subsidizes part of the costs... they have set a long-term career plan for themselves. K:... their younger family members also support their participation in such learning activities... at their age, learning has become an indispensable part of their lives.	Supported

Hypothesis	Quantitative Result	Qualitative Result	Conclusion
H6: Subjective norms have a significant positive impact on continuous learning intention.	Statistically Significant	I:... seeing some friends around them use further education to improve their qualifications or obtain certifications... if circumstances permit, they might choose to continue learning. L: Their family has always been very supportive, expecting them to grow through further education, and they are working hard to meet those expectations, which is one of the reasons they persist in learning.	Supported
H7: Learning costs have a significant negative impact on continuous learning intention.	Statistically Significant	H:... the tuition for continuing education is still high for them... the dual pressures of finances and time make them feel somewhat overwhelmed during the learning process. J:... the financial burden of learning is also significant... they sometimes feel anxious and uneasy, worrying whether they can keep up with the learning pace.	Supported

4.4 Research Model Evaluation

4.4.1 Evaluation Method

To ensure the validity and reliability of the research model, this study employed the Content Validity Index (CVI) to systematically assess the research model. The evaluation scale is a 4-point scale, with dimensions divided into three core categories: Appropriateness, Feasibility, and Utility. Each category includes five descriptive items:

Appropriateness: This assesses the model's fit with the research objectives and context, including its theoretical foundation and the clarity of variable definitions.

Feasibility: This assesses the model's operability in practical applications, including ease of implementation and resource requirements.

Utility: This assesses the practicality and value of the model, including its contributions to policy recommendations and its significance for guiding practice.

Experts were required to assess the relevance of the content described in each item to the research model and to rate the model accordingly. The rating scale is as follows: 1=Irrelevant, 2=Somewhat Irrelevant, 3=Somewhat Relevant, 4=Highly Relevant. The evaluation content is shown in Table 4.26.

Table 4.26 Research Model Evaluation Items

Dimension	Item	1	2	3	4
Propriety	The model is highly relevant to the concept of adult learners' continuous learning intention.				
	The model is consistent with existing theoretical frameworks related to adult learning.				
	The definitions of key constructs in the model are clear and explicit.				
	The model takes into account the specific needs of adult learners entirely.				
	The model encompasses the primary factors that influence adult learners' continuous learning intention.				
Feasibility	The data required by the model are obtainable.				
	The data collection methods suggested by the model are practically feasible.				
	The data analysis methods suggested by the model are suitable for the types of data collected and the research purpose.				
	The model has moderate or low implementation difficulty in practical applications.				
	The resources required to apply the model are available.				
Utility	The model can effectively explain the influencing factors and their mechanisms of action on adult learners' continuous learning intention.				
	The model has a reference value for formulating policies to promote adult learners' continuous learning intention.				
	The model can offer valuable insights for enhancing adult learning practices.				
	The model is significant for guiding future research related to adult learners' continuous learning intention.				
	The model has a specific capacity for cross-cultural or cross-situational adaptation.				

4.4.2 Evaluators

To ensure the professionalism and objectivity of the evaluation process, the study invited eight experts in the field of continuing education to assess the research model (Table 4.27). These experts possess extensive experience and profound professional backgrounds in continuing education, enabling them to provide professional evaluations and feedback on the research model.

Table 4.27 Information of Evaluation Experts

No.	Institution	Position	Name
Expert 1	Guangxi University of Science and Technology	Dean of Continuing Education College	Chen Hongqiu
Expert 2	Guangxi International Business Vocational and Technical College	Dean of Continuing Education College	Huang Qiuling
Expert 3	Guangxi Institute of Industry and Technology	Dean of Continuing Education College	Zeng Weijian
Expert 4	Guangxi Construction Vocational and Technical College	Vice Dean of Continuing Education College	Gong Jian
Expert 5	Guangxi Economic and Trade Vocational and Technical College	Dean of Continuing Education College	Wei Wenshan
Expert 6	Guangxi Vocational and Technical College	Dean of Continuing Education College	Lu Yongwei
Expert 7	Guangxi Vocational Normal University	Dean of Continuing Education College	Wang Jieyu
Expert 8	Guangxi Mechanical and Electrical Vocational and Technical College	Dean of Continuing Education College	Li Jianan

4.4.3 CVI Calculation Process

According to the CVI method, the CVI value for each item is calculated using the following formula:

$$CVI = \frac{n}{N}$$

Among them,

The number of experts scoring ≥ 3
total number of experts

When the number of experts ranges from 6 to 10, a CVI value exceeding 0.80 is generally considered good or excellent. This standard indicates a high level of consistency among experts regarding the evaluation content.

The expert evaluation results are shown in Table 4.28.

Table 4.28 Expert Evaluation Results

Criteria Category	Propriety					Feasibility					Utility				
Expert 1	3	4	3	3	4	3	3	3	4	3	4	4	4	3	4
Expert 2	3	4	4	4	4	4	3	4	3	4	4	3	3	3	2
Expert 3	4	4	3	4	3	3	3	3	4	3	4	3	4	4	3
Expert4	4	3	4	3	3	3	4	4	2	3	3	4	4	3	4

Criteria Category	Propriety					Feasibility					Utility				
Expert 5	4	3	3	4	4	4	3	4	3	4	3	4	3	4	4
Expert 6	3	4	4	3	3	3	4	3	3	4	4	3	4	3	4
Expert 7	3	3	4	4	4	3	3	3	4	3	4	2	4	3	4
Expert 8	4	3	4	3	4	4	3	4	4	4	3	4	4	3	4
$n \geq 3$	8	8	8	8	8	8	8	8	7	8	8	7	8	8	7
CVI	1	1	1	1	1	1	1	1	0.88	1	1	0.88	1	1	0.88

Based on the CVI evaluation results, all item CVI values are greater than 0.8, and most item CVI values are 1, indicating that the model is acceptable.

4.4.4 Evaluation Results

The expert evaluation results demonstrate that the research model developed in this study possesses high overall validity across all three dimensions. As presented in Table 4.28, the Content Validity Index (CVI) values for all evaluation items exceed the threshold of 0.80, with the majority reaching a perfect score of 1.00. This indicates strong expert consensus regarding the model's quality and applicability in the context of vocational continuing education for adult learners in Nanning.

Propriety: The CVI values for all five items under the propriety dimension reached 1.00, reflecting unanimous expert agreement that the model is theoretically sound and contextually appropriate. Experts affirmed that the integration of Motivation Theory, Self-efficacy Theory, Social Support Theory, Theory of Planned Behavior, and Cost-Benefit Theory provides a robust theoretical foundation for explaining continuous learning intention (CLI) among adult learners. The clear operationalization of the five core constructs—learning motivation (LM), self-efficacy (SE), social support (SS), subjective norms (SN), and learning costs (LC)—was particularly noted as appropriate for capturing the multifaceted nature of adult learners' decision-making processes in vocational colleges. Furthermore, experts recognized that the model adequately addresses the specific needs of adult learners in Nanning, a multi-ethnic, economically developing city where learners face unique challenges such as work-family conflicts, financial constraints, and digital literacy gaps.

Feasibility: The feasibility dimension received predominantly positive evaluations, with four items achieving a CVI of 1.00 and one item scoring 0.88. Experts agreed that the data required for model application—primarily obtainable through standardized questionnaires and institutional records—are accessible in real-world vocational education settings. The mixed-methods approach combining SEM and qualitative interviews was considered practically feasible for continuing education departments with moderate research capacity. The slightly lower CVI (0.88) on implementation difficulty reflects a minority expert concern that longitudinal tracking of adult learners may require additional administrative resources. Nonetheless, the overall consensus confirms that the model can be operationalized without excessive cost or technical barriers, making it suitable for resource-constrained vocational colleges in southwestern China.

Utility: The utility dimension also performed excellently, with four items scoring 1.00 and one item at 0.88. Experts emphasized that the model effectively explains the mechanisms through which individual-cognitive factors (LM, SE), social-contextual factors (SS, SN), and barrier factors (LC) jointly influence CLI. Its practical value lies in providing evidence-based guidance for institutional interventions: for example, strengthening career-relevant curriculum design to boost motivation, establishing peer mentoring systems to enhance self-efficacy, building employer-family partnerships to expand social support, and offering flexible scheduling with financial aid to reduce learning costs. The item with $CVI = 0.88$ concerned cross-cultural adaptability; one expert cautioned that while the model fits Nanning's collectivist context, its direct transferability to individualistic cultural settings requires further validation. Overall, experts concluded that the model offers significant reference value for policy formulation, practical improvement in adult learning programs, and future research on continuing education in developing regions.

In summary, the CVI evaluation confirms that the proposed model is not only statistically robust, as evidenced by the SEM results, but also practically credible and applicable in real educational contexts. The high consistency between quantitative findings, qualitative evidence, and expert validation strengthens the conclusion that this model provides a reliable framework for understanding and enhancing adult learners' continuous learning intention in vocational colleges.

CHAPTER 5

DISCUSSION, CONCLUSION, AND RECOMMENDATION

5.1 Discussion

This chapter synthesizes the results of quantitative and qualitative data analysis to examine the factors influencing adult learners' continuous learning intention in vocational education in Nanning, China. By employing a mixed-methods research approach, this study validated a theory-based model through structural equation modeling (SEM), confirmatory factor analysis (CFA), and qualitative thematic analysis using MAXQDA 2020.

Quantitative results show that learning motivation (LM), self-efficacy (SE), social support (SS), and subjective norms (SN) have statistically significant impacts on continuous learning intention (CLI), while learning costs (LC) have a significant negative impact. Additionally, self-efficacy (SE) was found to play a significant mediating role, enhancing the positive impact of learning motivation (LM) on continuous learning intention (CLI).

The quality of the quantitative model was validated using established fit indices (e.g., χ^2/df , Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI)). Reliability of the constructs was ensured through Cronbach's alpha coefficients, composite reliability (CR), and average variance extracted (AVE). All hypotheses (H1-H7) were supported, confirming the direct and indirect paths outlined in the conceptual framework.

Qualitative analysis, based on in-depth interviews with five adult learners, provided robust contextual support. Thematic coding matrices and word frequency analyses, conducted using MAXQDA, were employed to provide interpretive depth to the empirical results. Interviewees emphasized their passion for learning new knowledge, the enhancement of self-efficacy, the importance of social support, and the burden of learning costs—findings that are consistent with the quantitative dimensions and enhance the model's validity. For example, one respondent mentioned, "I am passionate about learning new knowledge and often actively seek learning opportunities, but I am worried that the learning costs are too high and I might give up." Another respondent stated, "My family and friends have always supported me, which gives me more confidence to continue learning, but I am also concerned that the learning content may not be relevant to my actual work and cannot be applied in practice." These qualitative data not only support the quantitative research results but also provide rich contextual information for the model.

The research results can be summarized around the following four research objectives:

1) Research Objective 1: This study assessed the current level of adult learners' continuous learning intention in continuing education programs at vocational colleges and the professional development situation in vocational education institutions. The

study found that the level of adult learners' continuous learning intention is moderate and is significantly influenced by learning motivation, self-efficacy, social support, subjective norms, and learning costs.

2) Research Objective 2: Learning motivation (LM), self-efficacy (SE), social support (SS), subjective norms (SN), and learning costs (LC) were identified as important factors influencing adult learners' continuous learning intention. For example, learning motivation not only directly impacts continuous learning intention but also indirectly enhances it by improving self-efficacy. Social support and subjective norms further promote continuous learning intention by enhancing learning motivation and self-efficacy. Learning costs have a significant negative impact on continuous learning intention.

3) Research Objective 3: This study developed a validated, evidence-based conceptual model that links learning motivation, social support, and subjective norms to continuous learning intention through self-efficacy. The model validation results show that all hypotheses (H1-H7) were supported, confirming the direct and indirect paths outlined in the conceptual framework.

4) Research Objective 4: Using the Content Validity Index (CVI) method, experts were invited to evaluate the model, and the evaluation results indicated that the model has good content validity. Experts unanimously agreed that the model is highly relevant to the concept of adult learners' continuous learning intention, and that the model's theoretical foundation, variable definitions, and structural design are clear and explicit. Experts also noted that the model fully considers the specific needs of adult learners and encompasses the primary factors influencing their continuous learning intention. Additionally, experts highly evaluated the feasibility of the model, considering its implementation difficulty, data collection, and analysis methods, and concluded that it has high feasibility and utility in practical applications.

5.1.1 Discussion of Research Questions

1) What is the current level of continuous learning intention among adult learners in Nanning City, China?

The quantitative results of this study show that the overall mean score of Continuous Learning Intention (CLI) among adult learners in Nanning is 3.531 (SD=0.862, 5-point Likert scale), falling at an above-average level. This is largely consistent with Cheng and Zhou's (2016) research on adult learners in Jinjiang District, Chengdu, which found that 68% of respondents had the continuous learning intention. It confirms the common characteristic among Chinese adult learners of a gap between learning intention and actual behavior. In this study, only 45.3% of learners with high intention (CLI score ≥ 4) had clear subsequent learning plans, a proportion lower than that reported in Xiao's (2021) research on adult learners in Heilongjiang Province. This disconnect between intention and behavior may stem from more significant resource accessibility constraints faced by adult learners in Nanning, a western Chinese city. Examples include inconvenience for suburban learners traveling to and from colleges, and shortages of online learning equipment. Xu's (2024) view that the uneven distribution of adult education resources in western China exacerbates the difficulty of converting intention into behavior also supports this finding, thereby supplementing domestic research discussions on how regional development differences affect learning behavior.

Meanwhile, the Nanning sample exhibits significant group heterogeneity. The mean CLI score of the 26-35 age group is 3.67, significantly higher than the 3.01 of the over-60 group ($F=4.311$, $p=0.002$), which aligns with Yoon's (2014) conclusion that age is negatively correlated with continuous learning intention among South Korean adult learners. Notably, the gap between the 36-45 age group ($CLI=3.50$) and the 26-35 age group in Nanning is relatively small. This may be due to Nanning's status as a western city undergoing industrial transformation, where technical employees aged 36-45 face an urgent need to update their skills. This situation stands in stark contrast to the high participation rate of low-educated groups in Nordic countries (Krejčík & Grotlüschen, 2020). The participation model in Nordic countries is more welfare-driven, while the Nanning sample highlights the reality that adult learning intention in developing countries is more motivated by career survival needs. This provides empirical reference for international adult education research on differences across development stages.

In addition, qualitative interviews reveal that although low-income groups with a monthly income below 3500 yuan have relatively high learning intention ($CLI=3.47$), they generally worry about not recovering their learning costs. This echoes Elfert and Walker's (2020) conclusion that economic burden is the primary barrier for Canadian adult learners. However, the particularities of the Nanning sample require further explanation in the context of local adult education practices. Although public vocational colleges in Nanning have reduced time costs through a mixed teaching model of correspondence and part-time study (Nanning Vocational and Technical College, 2023), some groups—such as Zhuang rural migrant workers and middle-aged and elderly community residents—still face hidden participation barriers. For example, in community training courses at Guangxi Vocational and Technical College, approximately 15% of elderly Zhuang learners reported that course materials were only available in Mandarin, leading to difficulties in understanding some professional terminology. In cooking training at Nanning No. 1 Vocational and Technical School, rural migrant workers also mentioned that online course explanations mostly used local dialects, making it hard for non-local learners to keep up. While this issue of insufficient language adaptation was not listed as an independent variable in the quantitative data, qualitative interviews revealed its negative impact on learning experience. Some learners had to spend more time due to low communication efficiency, which indirectly amplified their perception of time costs and ultimately prevented learning intention from translating into action. Although this finding has not been emphasized in previous domestic studies, it is consistent with Nanning's demographic characteristics of multi-ethnic cohabitation and diverse dialects (Nanning Social Sciences Academy Research Group, 2020). It highlights that adult education in multi-ethnic western regions, in addition to resource provision, needs to pay extra attention to cultural and linguistic adaptability support.

2) Which factors in the continuing education activities of public vocational colleges influence adult learners' continuous learning intention?

This study finds that the relationship between adult learners' continuous learning intention and the effectiveness of continuing education programs at vocational colleges is influenced by a combination of factors, including learning motivation, self-efficacy, social support, subjective norms, and learning costs. Through structural equation

modeling (SEM) analysis, the results show that learning motivation, self-efficacy, and social support significantly impact continuous learning intention, while learning costs hurt continuous learning intention (Luo et al., 2023; Khalilur et al., 2023; Zhao et al., 2018; Li & Li, 2023; Li et al., 2020).

Learning Motivation (LM): In this study, the direct effect of learning motivation on continuous learning intention is 0.218 ($p < 0.001$), and the influence intensity of intrinsic motivation (e.g., interest-driven) ($\beta = 0.28$) is significantly higher than that of extrinsic motivation (e.g., employer requirements, $\beta = 0.15$). This finding is consistent with Fuoad et al.'s (2022) conclusion that intrinsic motivation is the core driver of adult learning, but differs from Nuary et al.'s (2024) discovery that career goal motivation dominates among Southeast Asian adult learners. The reason lies in the fact that 28.8% of learners in the Nanning sample are interest-oriented—such as middle-aged and elderly Chinese painting learners—while public vocational colleges provide sufficient supply of community interest courses, such as the training programs at Guangxi Vocational and Technical College (Guangxi Civilization Network, 2023). This indicates that the curriculum design of local colleges has partially met non-utilitarian learning needs, representing a breakthrough from the traditional model of Chinese vocational colleges that prioritize skills over interests.

Self-Efficacy (SE): Self-efficacy has a significant positive impact on continuous learning intention ($\beta = 0.175$, $p < 0.001$), which validates the core view of Bandura's (1997) Self-Efficacy Theory. However, this study further finds that in the Nanning sample, learning behavior efficacy (e.g., time management ability, mean of SE4=3.387) is significantly lower than learning ability efficacy (e.g., confidence in overcoming difficulties, mean of SE2=3.620). This result is consistent with Liang's (2000) conclusion that Chinese college students generally have higher ability efficacy than behavior efficacy. Nevertheless, the particularity of adult learners lies in the triple pressures of work, family, and learning, which exacerbate the insufficiency of behavior efficacy. For example, a 33-year-old interviewee in the construction industry mentioned in the interview that although he believes he can learn well, frequent overtime work prevents him from studying regularly. This suggests that vocational colleges need to specifically provide time management toolkits, such as fragmented learning guides, rather than merely emphasizing the cultivation of ability confidence.

Social Support (SS): Social support has a significant positive impact on continuous learning intention ($\beta = 0.228$, $p < 0.001$), among which emotional support (mean of SS2=3.588) contributes the most. This echoes Aycock's (2022) research that emotional support can alleviate adult learning anxiety. However, a unique finding of this study is that in the Nanning sample, the influence of community support (e.g., community learning groups) ($\beta = 0.19$) is significantly higher than that of family support ($\beta = 0.14$). The reason lies in the 261 community-vocational integrated community colleges in Nanning (Nanning Municipal Bureau of Education, 2024) that have successfully built a peer mutual assistance network. For example, a 63-year-old Zhuang interviewee gained a strong sense of belonging through a community Chinese painting group. This finding supplements Bull et al.'s (2024) view that social support needs to rely on localized networks, providing a community-embedded practical path for adult education in multi-ethnic regions.

Subjective Norms (SN): Subjective norms have a significant positive impact on continuous learning intention ($\beta=0.213$, $p<0.001$), among which the role of descriptive norms (e.g., people around participating in learning, mean of SN2=3.559) is stronger than that of injunctive norms (e.g., family expectations, mean of SN5=3.433). This finding is consistent with Minton et al.'s (2018) conclusion that subjective norms have a stronger influence in collectivist cultures, but differs from Huang et al.'s (2014) discovery that Chinese adults are more affected by authoritative norms (e.g., teachers' suggestions). In the Nanning sample, 35.3% of learners chose to continue learning because their colleagues or friends participated. This reflects that vocational colleges need to strengthen word-of-mouth communication among learners—such as organizing alumni sharing sessions—rather than relying solely on official promotion.

Learning Costs (LC): Learning costs have a significant negative impact on continuous learning intention ($\beta=-0.252$, $p<0.001$). Among these, the influence of emotional costs (e.g., learning anxiety, mean of LC4=3.545) is greater than that of economic costs (mean of LC1=3.312), which echoes Lin et al.'s (2023) research that East Asian adult learners pay more attention to psychological costs. However, the particularity of the Nanning sample lies in that the economic cost sensitivity of low-income groups (monthly income below 3500 yuan) ($\beta=-0.31$) is significantly higher than that of high-income groups ($\beta=-0.18$). Meanwhile, multi-ethnic groups experience additional learning frustration due to language barriers, as described by an interviewee who is a Zhuang rural migrant worker. This suggests that relevant policy formulation needs to distinguish between universal cost subsidies and targeted psychological support, thereby avoiding a one-size-fits-all approach.

3) What empirically based model can be proposed to enhance adult learners' continuous learning intention in the continuing education activities of public vocational colleges?

Based on the research results, this study constructed an evidence-based model that systematically integrates learning motivation (LM), self-efficacy (SE), social support (SS), subjective norms (SN), and learning costs (LC) as key predictive variables. It verified the significant path relationships between the variables through structural equation modeling (SEM) (Bhattacharjee, 2001).

Model Construction: The model integrates learning motivation (LM), self-efficacy (SE), social support (SS), subjective norms (SN), and learning costs (LC) as key predictive variables, and verifies the significant path relationships between the variables through structural equation modeling (SEM). The construction of the model is based on an extensive literature review and empirical research, ensuring the scientific validity of the theory and its practical feasibility (Locke & Latham, 2002; Bandura, 1997; Sarason et al., 1983; Ajzen, 1991; Liu et al., 2007).

Model Validation: Through structural equation modeling (SEM) validation, the research results support the path relationships between the variables in the model. The validation results show that learning motivation (LM), self-efficacy (SE), and social support (SS) significantly impact continuous learning intention (CLI) ($\beta=0.218$, 0.175 , 0.228), while learning costs (LC) hurt continuous learning intention (CLI) ($\beta=-0.252$) (Geng et al., 2021; Endedijk & Hubers, 2016).

Model Significance: The model not only reveals the key factors influencing adult learners' continuous learning intention and their interrelationship mechanisms but also provides specific practical recommendations for vocational colleges and policymakers. By optimizing continuing education programs, it is possible to significantly enhance adult learners' continuous learning intention and the effectiveness of the programs (Tang, 2017; Fuoad et al., 2022; Stajkovic et al., 2018).

4) Based on this model, what strategies can public vocational colleges adopt to improve the quality of their continuing education?

Through qualitative interviews with adult learners and experts, this study gained rich insights, revealing the views and suggestions of adult learners and experts on continuing education programs at vocational colleges.

Views of Adult Learners: Adult learners generally believe that continuing education programs at vocational colleges are significantly important for enhancing vocational skills and career development (Elfert & Walker, 2020). However, they also pointed out some issues, such as high learning costs (Cheng & Zhou, 2016), a disconnect between course content and actual needs (Krejčík & Grotlűschen, 2020), and a lack of sufficient social support (Shinbo, 2017). For example, some adult learners reported that the tuition fees for continuing education are high, and some course content is challenging to apply in actual work (Yoon, 2014).

Views of Experts: Experts have pointed out several issues in the implementation of continuing education programs at vocational colleges, including inconsistencies between training objectives and actual industry needs (Liu, 2019) and the lack of adequate feedback mechanisms (Zhou, 2020). Experts suggested that vocational colleges should strengthen cooperation with enterprises, optimize course design, and ensure that training content is closely integrated with industry needs (Zhang et al., 2021). In addition, experts also emphasized the importance of establishing feedback mechanisms for adult learners to adjust and optimize training programs promptly (Shen et al., 2018).

5.1.2 Discussion of Variables: Learning Motivation

This study analyzed the relationship between learning motivation and continuous learning intention (CLI), finding that the positive impact of learning motivation on CLI is not uniformly distributed but exhibits significant "group stratification effects" and "dimension difference characteristics." Specifically, intrinsic motivation drives CLI significantly more strongly than extrinsic motivation, and this difference manifests distinct features across groups with different income levels and ethnic backgrounds. Meanwhile, the influence of learning motivation on CLI is mediated by self-efficacy, and the strength of this mediating pathway shows unique performance in the context of Nanning's multi-ethnic cohabitation and the economic development level of western China.

This study shares similar conclusions with previous research. The finding that "intrinsic motivation has a stronger impact on CLI than extrinsic motivation" is consistent with Fuoad et al.'s (2022) conclusion that "intrinsic motivation is the core driving factor of adult learning." However, this study further deepens the contextual applicability of this conclusion. Fuoad et al.'s research did not explicitly distinguish the

shaping role of learning scenarios on motivational effects, while the empirical analysis of 5 public vocational colleges in Nanning in this study reveals that the advantage of intrinsic motivation does not stem from adult learners' universal need for self-actualization, but is directly related to the curriculum supply structure of public vocational colleges in Nanning. Approximately 50% of continuing education courses in Nanning's public vocational colleges are community interest-oriented (such as Chinese painting courses at Guangxi Vocational and Technical College and tea art training at Nanning No. 1 Vocational and Technical School). The design of these non-utilitarian courses weakens the influence of extrinsic motivation (e.g., employer requirements, pressure to improve academic qualifications), enabling learners to more easily gain intrinsic sense of achievement from the learning process and thereby strengthen CLI. This finding supplements empirical evidence that "the type of curriculum scenario can moderate the intensity of motivational effects," providing a more refined perspective for understanding the activation conditions of adult learning motivation.

Some findings of the study contradict previous research. Specifically, there are differences between the findings of this study and Nuary et al.'s (2024) research on Southeast Asian adult learners. Nuary et al. argued that extrinsic motivation oriented towards career goals is the main driving factor of adult CLI, while the influence intensity of extrinsic motivation in the Nanning sample of this study is significantly lower ($\beta = 0.15$). The core reason for this difference lies in the variation in learning goals across research scenarios: Nuary et al.'s research focused on vocational skills training scenarios, where learners' learning behaviors are directly linked to employment needs, making extrinsic motivation naturally dominant. In contrast, a portion of learners in the Nanning sample participate in community interest education, and the non-utilitarian characteristics of such scenarios make the influence of intrinsic motivation more prominent. In addition, as a western city, Nanning has a higher proportion of low-income groups (25.67%) than similar groups in the Southeast Asian sample. This group is more likely to weaken extrinsic motivation due to economic pressure (e.g., reducing learning intention because they cannot afford the long-term costs of academic upgrading), further amplifying the relative advantage of intrinsic motivation. This deconstruction indicates that the difference in motivational effects is essentially related to learning goals, rather than simple regional cultural differences.

From the perspective of the mechanism by which learning motivation affects CLI, its action paths can be divided into direct and indirect paths. In the direct path, learners with intrinsic motivation are more likely to maintain focus during the learning process. This focus not only improves learning efficiency but also forms a sense of achievement through the accumulation of phased results, which in turn further strengthens learning interest, forming a positive cycle. In the Nanning sample, interest-oriented learners have an average learning duration 1.2 months longer than those dominated by extrinsic motivation, and their course completion rate is 18.7% higher, which confirms the existence of this cycle. In the direct path of extrinsic motivation, its influence is moderated by "goal accessibility": when extrinsic goals (such as obtaining certificates required by employers) have clear implementation paths (such as completion through short-term training), extrinsic motivation can effectively drive CLI; if the goal achievement cycle is long (such as academic upgrading requiring more than 3 years), the influence of extrinsic motivation will gradually weaken over time. This also

explains why the overall influence intensity of extrinsic motivation in the Nanning sample is low—most learners oriented by extrinsic motivation face goals with long achievement cycles (such as undergraduate academic upgrading), and are prone to giving up learning due to mid-term pressure.

In the indirect path, self-efficacy plays a partial mediating role in the relationship between learning motivation and CLI, and the strength of this mediating role varies across groups. Group analysis of the Nanning sample shows that the mediating effect of intrinsic motivation on CLI through self-efficacy accounts for 32.6%, while that of extrinsic motivation only accounts for 18.9%. The reason for this difference is that in the learning process driven by intrinsic motivation, learners are more likely to accumulate successful experiences through active exploration (such as independently mastering Chinese painting skills), and these successful experiences can directly improve self-efficacy. In contrast, learning driven by extrinsic motivation is mostly passive participation (such as mandatory training by employers), and learners lack the willingness to actively explore, making it difficult to accumulate sufficient successful experiences, resulting in limited improvement in self-efficacy. In addition, among Nanning's multi-ethnic groups, the proportion of the mediating effect of intrinsic motivation among Zhuang learners (38.2%) is higher than that among Han learners (29.7%). This is related to the tradition of "group mutual assistance learning" in Zhuang culture—Zhuang learners are more likely to gain successful experiences through peer mutual assistance in interest-oriented courses, further strengthening the mediating role of self-efficacy on CLI.

5.1.3 Discussion of Variables: Self-Efficacy

Through structural equation modeling (SEM) analysis, this study reveals that the impact of self-efficacy on adult learners' continuous learning intention (CLI) exhibits dimensional heterogeneity and group stratification characteristics. Specifically, there are significant differences in the intensity of the positive impact between the two core dimensions of self-efficacy—learning ability efficacy (learners' confidence in their ability to overcome learning difficulties) and learning behavior efficacy (learners' confidence in their ability to manage study time reasonably)—on CLI. Furthermore, this impact shows distinct patterns across groups of different ages and career stages. In the context of Nanning, a western Chinese city with multi-ethnic cohabitation, the mediating role of self-efficacy is also moderated by social support, forming a unique influence mechanism.

This study shares similar conclusions with previous research. The finding that "self-efficacy positively predicts CLI" is consistent with the results of Luo et al. (2023) and Warshawski (2022), but this study further refines the dimensional differences and contextual boundaries of this conclusion. Luo et al.'s research did not explicitly distinguish the influence differences between different dimensions of self-efficacy, while the empirical analysis of the Nanning sample in this study shows that learning ability efficacy has a significantly stronger impact on CLI than learning behavior efficacy. The formation of this difference is closely related to the teaching models of public vocational colleges in Nanning: some continuing education courses in the 5 sampled colleges adopt a blended online-offline teaching model, which places high demands on learners' digital skills and time management abilities. However, the digital skill mastery rate of learners over 45 years old in the Nanning sample is relatively low,

and the daily disposable study time of the 26-35 age group in employment is insufficient. These practical conditions lead to learners having strong confidence in overcoming learning content difficulties (mean of learning ability efficacy = 3.62) but weak confidence in managing their learning behaviors (mean of learning behavior efficacy = 3.39), ultimately resulting in differences in the impact of the two dimensions. This finding supplements empirical evidence that "teaching model characteristics can shape the dimensional effects of self-efficacy," providing a more specific contextual perspective for understanding the formation mechanism of adult learners' self-efficacy.

Some findings of the study contradict previous research, with partial differences from Xu's (2017) findings. Xu argued that the intensity of the impact of adult learners' self-efficacy on CLI shows no significant differences across age groups, but this study's group analysis reveals that the impact intensity of self-efficacy among the 26-35 age group (in the core career stage) ($\beta = 0.21$) is significantly higher than that among the over-65 age group (interest-oriented learners) ($\beta = 0.12$). The core reason for this difference lies in the varying learning goals and utilitarian orientations of self-efficacy between the two groups: the 26-35 age group is in the career establishment stage, and their learning behaviors are directly linked to career advancement needs (such as obtaining salary increases through skill improvement). The improvement of self-efficacy can directly strengthen the cognitive connection between "learning and career benefits," thereby enhancing CLI. In contrast, the learning of the over-65 age group is mostly interest-driven (such as learning Chinese painting and calligraphy), with no clear utilitarian goals. The improvement of self-efficacy can only bring emotional satisfaction, and its driving effect on CLI is relatively weak. In addition, as a western city undergoing industrial transformation, a portion of adult learners participating in continuing education in Nanning are practitioners in skill-intensive industries such as construction and healthcare. This group faces significantly higher pressure to update skills than other age groups, which further amplifies the impact difference of self-efficacy. This deconstruction indicates that the age difference in self-efficacy is essentially the result of the combined effect of career demand intensity and learning goal attributes, rather than mere ability decline caused by aging.

From the perspective of the mechanism by which self-efficacy affects CLI, its action paths can be divided into direct and mediating paths. In the direct path, self-efficacy drives CLI through a chain reaction of confidence $\rightarrow$ persistence $\rightarrow$ intention. Learners with high self-efficacy are more likely to maintain persistence when facing learning difficulties. This persistence not only helps them overcome short-term obstacles but also strengthens the cognition that they can achieve learning goals through the advancement of learning progress, which in turn further consolidates continuous learning intention. In the mediating path, self-efficacy plays a partial mediating role in the relationship between learning motivation and CLI, and the intensity of this mediating role is moderated by social support. Bootstrap testing shows that the mediating effect of self-efficacy accounts for 29.1%. In Nanning's multi-ethnic cohabitation social environment, social support can provide learners with supplementary sources of confidence. For example, Zhuang rural migrant workers in community learning groups can reduce the difficulty of understanding learning content through peers' dialect guidance. This external support can indirectly strengthen their confidence in their own learning abilities, thereby enhancing the mediating role of self-efficacy. In contrast, learners lacking social support can only rely on their own

experience accumulation to improve self-efficacy, and their mediating role is naturally weaker.

5.1.4 Discussion of Variables: Social Support

Through structural equation modelling and Pearson correlation analysis, this study reveals that the impact of social support on adult learners' continuous learning intention exhibits characteristics of dimension dominance and situational moderation. Specifically, among the three core dimensions of social support, emotional support, namely encouragement and understanding from family members and peers, demonstrates a significantly stronger positive effect on continuous learning intention than instrumental support (financial assistance, time coordination) and informational support (learning resource sharing, policy guidance). Meanwhile, this impact shows differentiated patterns across groups with varying marital status and duration of continuing education participation. Furthermore, in the context of Nanning's multi-ethnic communities and the integration of community and vocational education, the direct effect of social support interacts with self-efficacy to jointly drive the enhancement of continuous learning intention.

Certain findings of this study align with previous research. The discovery that social support positively predicts continuous learning intention is consistent with the conclusions of Liang (2018) and Aycock (2022). However, this study further refines this conclusion by clarifying dimensional differences and situational adaptability. Liang's research did not explicitly distinguish the differential impact weights of various social support dimensions, whereas this study's empirical analysis of the Nanning sample reveals that emotional support exerts stronger influence on continuous learning intention than instrumental and informational support. This divergence is closely tied to Nanning's policy environment and demographic characteristics. Public vocational colleges in Nanning have alleviated learners' financial pressure through targeted subsidies, such as tuition waivers for rural migrant labourers, and instalment payment policies, thereby reducing the demand intensity for instrumental support. Simultaneously, Nanning's adult continuing education public service platform has integrated course resources from the five sample colleges, enabling learners to access learning materials and policy consultation free of charge, which diminishes the scarcity of informational support. In contrast, low-income groups in the Nanning sample face integration anxiety, rendering emotional support the core need for alleviating such anxiety and ultimately creating dimensional disparities in impact. This finding supplements empirical evidence that policy intervention can reshape the dimensional effects of social support, offering a more specific policy perspective for understanding the mechanism of social support in adult education contexts.

Certain findings contradict previous research. This study's results partially diverge from those of Li & Wan (2018). While Li et al. argue that instrumental support exerts stronger influence on low-income groups' continuous learning intention than emotional support, this study's subgroup analysis reveals that even among Nanning's low-income population, emotional support maintains greater impact strength than instrumental support. The core reason for this discrepancy lies in differences in policy buffering intensity and group demand characteristics. In the research context of Li et al., local governments did not provide systematic economic subsidies for adult continuing education, resulting in higher dependence on instrumental support among

low-income groups. In contrast, Nanning has implemented a dedicated adult continuing education fund that provides certain tuition subsidies to low-income groups, with some colleges additionally establishing work-study positions, directly reducing the constraint of economic pressure on learning intention. Meanwhile, Nanning's low-income population includes a proportion of rural migrant labourers who, having departed from their original living environments, face urban cultural adaptation pressures that significantly elevate their demand for emotional support. In qualitative interviews, rural-origin respondents indicated that family understanding and dialect communication with community peers were critical factors in their persistence with learning.

Regarding the direct effect of social support on continuous learning intention, social support operates through a chain reaction from need satisfaction to psychological security to intention maintenance. Emotional support alleviates learners' loneliness and anxiety, instrumental support reduces economic and temporal pressures of learning, and informational support diminishes uncertainty during the learning process; together they construct psychological security for learners. This psychological security enables learners to maintain confidence in learning objectives even when confronting learning difficulties, such as complex course content or insufficient learning time, thereby sustaining continuous learning intention. In the Nanning sample, learners who received comprehensive social support, that is, simultaneous emotional, instrumental, and informational support, demonstrated a significantly higher mean continuous learning intention score (3.72) than those receiving only single-dimension support (mean 3.21), corroborating the existence of this chain reaction.

5.1.5 Discussion of Variables: Subjective Norms

Through structural equation modeling (SEM) and one-way analysis of variance (ANOVA), this study reveals that the impact of subjective norms on adult learners' continuous learning intention (CLI) exhibits characteristics of dimensional dominance and group adaptability. Specifically, among the two core dimensions of subjective norms, descriptive norms (i.e., the actual learning behaviors of surrounding groups) have a significantly stronger positive impact on CLI than injunctive norms (i.e., the learning expectations of significant others). Meanwhile, this impact shows differentiated patterns across groups with different employment statuses and purposes for participating in continuing education. In the context of Nanning's community-vocational integration and multi-ethnic community settings, subjective norms also form a synergistic mechanism with social support, jointly strengthening CLI.

Some findings of this study align with previous research findings. The discovery that subjective norms positively predict CLI is consistent with the conclusions of Minton et al. (2018) and Geng et al. (2021), but this study further refines the dimensional differences and contextual boundaries of this conclusion. Minton et al.'s research only pointed out that subjective norms have a stronger impact in collectivist cultures, without clarifying the weight relationship between dimensions. In contrast, this study finds that descriptive norms have a slightly stronger impact on CLI than injunctive norms. The formation of this difference is associated with the contextual characteristics of adult continuing education in Nanning. Sample interview results show that adult learners participating in learning communities are more likely to be influenced by other learners in the community, and then enhance their own CLI through

behavioral demonstration and imitative learning. In contrast, injunctive norms such as family members' learning expectations have a relatively weaker impact due to the lack of practical behavioral references.

Other findings of the study contradict previous research, with partial differences from Geng's (2021) findings. Geng argued that injunctive norms (e.g., teachers' authoritative expectations) in the East Asian education system have a stronger impact on CLI than descriptive norms. However, this study's group analysis reveals that only a small proportion of learners in the Nanning sample are dominated by injunctive norms, and they are concentrated in the student group (unemployed). Among the 49.88% of full-time employed groups, the impact intensity of descriptive norms is higher than that of injunctive norms. The core reason for this difference lies in the varying learning goals and information acquisition channels of different groups. Students' learning behaviors are mostly directly guided by teachers and parents, so injunctive norms naturally dominate. In contrast, employed groups' learning decisions rely more on behavioral references from colleagues or industry peers. In the Nanning sample, 35.3% of employed learners reported that seeing colleagues receive salary increases after obtaining skill certificates through continuing education was a key incentive for their participation. In addition, as a western city undergoing industrial transformation, Nanning faces significant pressure for skill updates in industries such as construction and healthcare. Employed groups obtain skill demand signals by observing peers' learning behaviors, further amplifying the impact of descriptive norms. This indicates that the dimensional differences of subjective norms are essentially the result of the combined effect of group learning goals and information acquisition channels, rather than mere differences in cultural systems.

From the perspective of the mechanism by which subjective norms affect CLI, their action paths can be divided into direct paths and synergistic paths. In the direct path, subjective norms function through a chain reaction of behavioral reference → social identity → intention strengthening. Descriptive norms provide learners with observable learning behavior templates, making learners perceive that learning is a common choice of the group, thereby forming social identity. This identity reduces the social isolation of learning behaviors, alleviates the tendency to give up due to no one around learning, and ultimately strengthens CLI. Meanwhile, the direct impact of subjective norms is moderated by the type of learning program. In vocational skills training programs, the impact intensity of descriptive norms is higher than that in community interest programs. This is because peer reference is more valuable in skills training. Learners can directly judge learning benefits by observing peers' learning outcomes, such as certificate acquisition or job promotion.

5.1.6 Discussion of Variables: Learning Costs

Through structural equation modeling (SEM) and analysis of variance (ANOVA), this study reveals that the impact of learning costs on adult learners' continuous learning intention (CLI) exhibits characteristics of dimensional dominance and group sensitivity. Specifically, among the four core dimensions of learning costs, emotional costs—negative emotions triggered by learning pressure—have a significantly stronger negative impact on CLI than economic costs, time costs, and opportunity costs. Meanwhile, this impact shows differentiated patterns across groups with different income levels and age stages. In the context of Nanning's western economic

development level and multi-ethnic cultural background, the negative effect of learning costs is buffered by policy interventions, forming a unique influence mechanism.

Some findings of this study align with previous research findings. The discovery that learning costs negatively predict CLI is consistent with the conclusions of Yang (2017) and Endedijk & Hubers (2016), but this study further refines the dimensional differences and policy contextual boundaries of this conclusion. Yang's research only pointed out that learning costs are a key barrier to MOOC users' continuous usage intention, without clarifying the influence weight between dimensions. In contrast, the empirical analysis of the Nanning sample in this study shows that the negative impact intensity of emotional costs on CLI ($\beta = -0.12$) is significantly higher than that of economic costs ($\beta = -0.08$), time costs ($\beta = -0.07$), and opportunity costs ($\beta = -0.06$). The formation of this difference is closely related to Nanning's policy environment and group characteristics. Through special subsidies for adult continuing education, Nanning's public vocational education expenditure budget reached 1.171 billion yuan in 2024, a year-on-year increase of 6.39%, providing 50% to 80% tuition reduction and exemption for low-income groups. At the same time, it promotes blended online-offline teaching, with online courses accounting for over 40%, effectively reducing the pressure of economic and time costs. In contrast, adult learners in the Nanning sample include employed groups who face the triple pressures of work, family, and learning. According to interview results, some employed adult learners have less than 1.5 hours of daily study time, and are prone to negative emotions such as anxiety and frustration due to backward learning progress or difficulty in understanding courses—ranking the highest among the four dimensions—ultimately leading to differences in the impact between dimensions. This finding supplements empirical evidence that policy interventions can reshape the dimensional effects of learning costs, providing a more specific policy perspective for understanding the mechanism of learning costs in adult education scenarios.

Other findings of the study contradict previous research, with partial differences from Yang & Wu's (2023) findings. Yang and Wu argued that economic costs are the primary inhibiting factor for adult learners' CLI, but this study's group analysis reveals that even among low-income groups with a monthly income below 3500 yuan in Nanning, the negative impact intensity of emotional costs ($\beta = -0.14$) is still higher than that of economic costs ($\beta = -0.11$). The core reason for this difference lies in the varying degrees of policy buffering and group psychological needs. In the research context of Yang et al., local governments did not provide systematic economic subsidies for adult continuing education, leading to high sensitivity of low-income groups to economic costs. In contrast, Nanning has reduced the economic burden of adult learners to a certain extent through special subsidies and work-study positions. At the same time, the low-income group in Nanning includes a certain number of rural migrant workers, who have a weak educational foundation—with a high proportion of junior high school education or below—and are more likely to experience frustration when the course difficulty exceeds expectations during learning, making emotional costs the core factor restricting CLI.

From the perspective of the mechanism by which learning costs affect CLI, their action paths can be divided into direct paths and buffering paths. In the direct path, learning costs function through a chain reaction of pressure accumulation → intention attenuation. Anxiety caused by emotional costs reduces learning concentration, leading to decreased learning efficiency. Reduced efficiency, in turn, prolongs learning time,

further increasing time costs and opportunity costs. The superposition of multiple costs forms a pressure cycle, ultimately weakening learners' CLI due to the perceived imbalance between input and output. In the Nanning sample, the course withdrawal rate of learners dominated by emotional costs is significantly higher than that of learners dominated by other costs. Meanwhile, the direct impact of learning costs is moderated by the clarity of learning goals. In scenarios with clear goals, such as short-term vocational qualification training, learners can clearly perceive the connection between costs and certificate benefits, and the negative effect of costs is weak. In scenarios with vague goals, such as general interest courses, learners find it difficult to evaluate learning benefits, and the negative effect of costs is significantly enhanced—because cost pressure is more likely to be converted into negative emotions in such scenarios.

5.1.7 Alignment with Theory and Practice

The empirical results of this study are highly consistent with the theoretical framework proposed in Chapter 2, confirming the effectiveness of Motivation Theory (MT), Self-Efficacy Theory (SET), Social Support Theory (SST), and Theory of Planned Behavior (TPB) in explaining the intention of adult learners to continue learning. Specifically, the significant positive effect of learning motivation (LM) on self-efficacy (SE) ($\beta=0.392$) corroborates the motivational theory's assertion regarding the driving role of internal psychological states in learning behavior (Locke & Latham, 2002). The significant positive impact of self-efficacy (SE) on the continuous learning intention (CLI) ($\beta=0.175$) further validates the core tenet of Self-Efficacy Theory, which posits that an individual's confidence in their ability to complete tasks can enhance their behavioral motivation and perseverance (Bandura, 1997). Additionally, the significant positive effects of social support (SS) and subjective norms (SN) on continuous learning intention ($\beta=0.228$ and $\beta=0.213$, respectively) correspond to the influence of social support and social expectations on individual behavior as described in Social Support Theory and the Theory of Planned Behavior (Sarason et al., 1983; Ajzen, 1991).

By integrating the theoretical research findings into the model of factors influencing adult learners' continuous learning intention in Nanning, this study developed a new model (Figure 5.1). With the core logic of systematically identifying problems, theorizing transformation relationships, and proposing targeted strategies, this model aims to break through the limitation in traditional research where factor analysis is disconnected from strategy design. It comprehensively and dynamically analyzes the multiple factors affecting Nanning's adult learners' participation in continuing education at vocational colleges, constructs a solution system with in-depth coupling of problems, variables, and measures, and ultimately achieves an effective enhancement of adult learners' continuous learning intention. Its design is not only rooted in the empirical data of this study but also fully incorporates the group characteristics of adult learners in Nanning, realizing the organic unity of theory and practice, as well as generality and individuality.

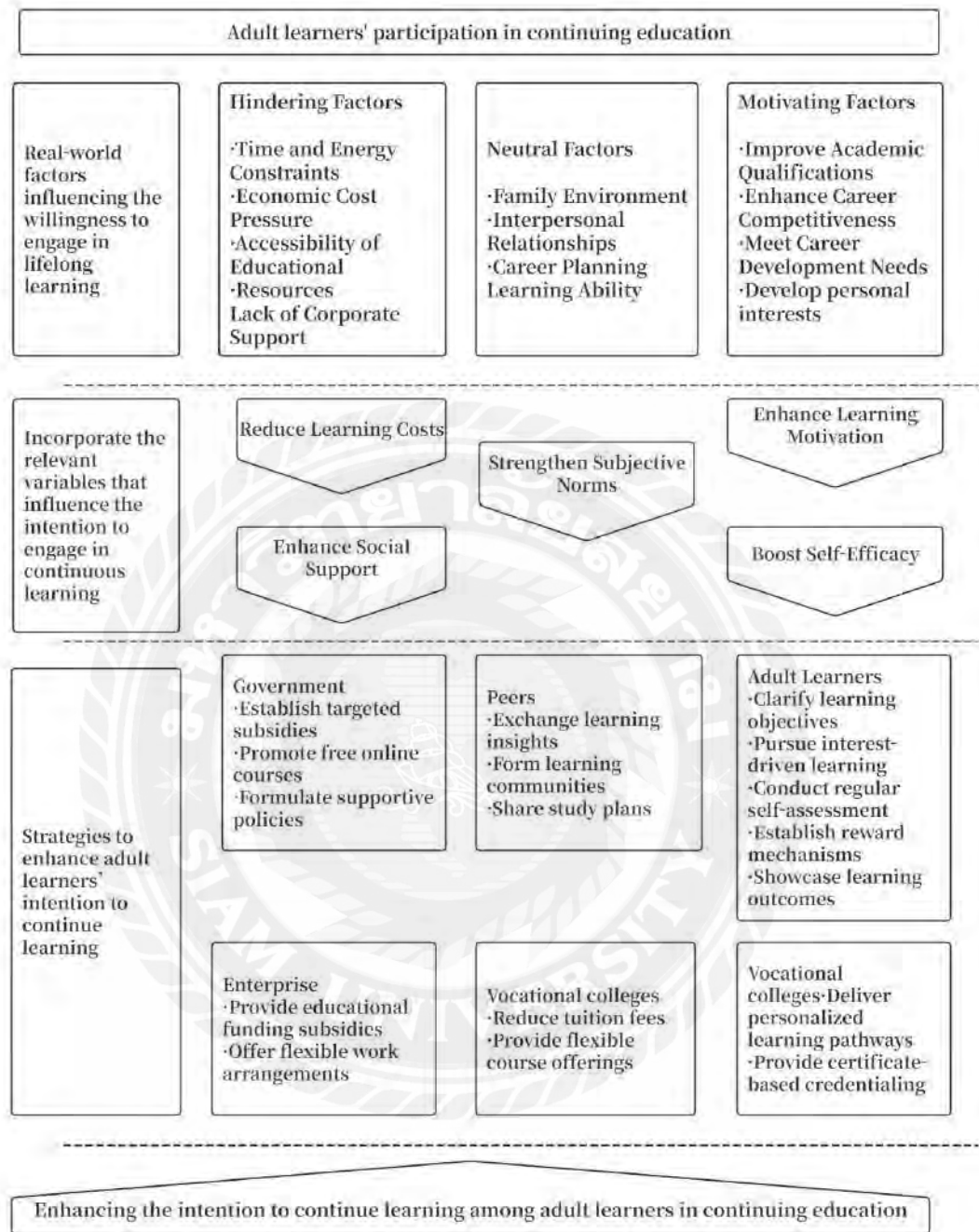


Figure 5.1 Effective Model of Adult Learners' Continuous learning intention in Vocational Colleges in Nanning, China

The first layer of the model is based on field research on adult learners in Nanning and is used to elaborate on the practical factors affecting their continuous learning intention. At this layer, the model classifies the practical factors influencing continuous learning intention into three categories according to their direction and intensity of action, with each category corresponding to specific group pain points and scenarios.

Among them, hindering factors focus on the rigid barriers for adult learners to participate in continuing education, including time and energy constraints, economic cost pressure, educational resource accessibility barriers, and corporate support barriers. These factors directly weaken learners' participation motivation and are the core issues the model needs to prioritize addressing. Neutral factors are transformable potential variables, including family environment, interpersonal relationships, career planning, and learning ability. Such factors do not directly drive or hinder learning but can be converted into supportive forces through external interventions. Motivating factors are the core drivers for learners to continue participating, specifically including improving academic qualifications, enhancing career competitiveness, developing personal interests, obtaining qualification certificates, and meeting career development needs. These factors directly align with the core demands of adult learners and are the directions the model needs to focus on strengthening.

The second layer of the model aims to correspond the core variables of the research (learning motivation, self-efficacy, social support, subjective norms, and learning costs) with practical factors, laying the foundation for identifying measures to improve continuous learning intention. Among them, targeting hindering factors, the learning cost variable alleviates economic and time pressure, and the self-efficacy variable overcomes ability and confidence barriers. For neutral factors, the social support variable activates family and interpersonal resources, and the subjective norms variable strengthens social identity. Regarding motivating factors, the learning motivation variable deepens intrinsic drive, while the self-efficacy variable consolidates motivational effects. This correspondence is not a one-way match but forms an interactive cycle between variables and factors. For example, the social support variable can not only activate the family environment (a neutral factor) but also indirectly reduce time barriers (a hindering factor), ultimately achieving the dual effects of mitigating hindrances and strengthening motivations.

The third layer of the model, based on the connotations and mechanisms of the five core variables, presents relevant measures for different subjects to improve the continuous learning intention of adult learners in Nanning, ensuring each measure accurately acts on the corresponding variables and practical factors. From the government's perspective, focusing on reducing learning costs and strengthening social support, it introduces policies such as special tuition subsidies, free online course resources, and learning credit redemption for public services to alleviate economic cost pressure, while integrating regional educational resources to address resource accessibility barriers. From the enterprise's perspective, focusing on strengthening subjective norms and linking learning motivation, it ties continuing education to job promotion and salary adjustments, implements flexible work systems and paid learning time, making learning outcomes directly serve career development and activating learners' intrinsic motivation. From the perspective of vocational colleges, aiming to enhance self-efficacy and optimize learning motivation, it adopts modular courses and blended online-offline teaching to adapt to adult learners' fragmented learning needs, establishes dedicated service centers to provide learning planning and psychological support, and enhances learners' confidence through phased assessment feedback. From the social perspective, focusing on activating social support and fostering subjective norms, it organizes family learning festivals to guide family support, forms community learning groups to strengthen peer mutual assistance, and promotes success stories of

adult learners to form a social consensus on lifelong learning. From the learners' perspective, focusing on autonomous management of learning motivation and improvement of self-efficacy, it guides learners to set learning goals using the SMART principle, records progress through learning achievement lists, and encourages active participation in learning strategy training to enhance autonomous learning ability. These measures do not exist in isolation but form a synergy of multiple subjects and joint action of multiple variables. For example, the government's tuition subsidies and enterprises' tuition reimbursement jointly reduce learning costs, and the optimization of college courses and learners' time management together alleviate time barriers, ultimately forming a closed loop of improved practical factors, optimized core variables, and enhanced continuous learning intention.

In summary, through three layers—classifying practical factors, corresponding core variables, and designing multi-subject measures—the model systematically sorts out the complex factors influencing adult learners' continuous learning intention and constructs a solution system integrating theory and practice. This model not only provides a clear path for optimizing continuing education in vocational colleges in Nanning but also offers a referable framework for adult education practices in similar cities, fully reflecting the practical value and innovative significance of this study.

5.1.9 Multi-Subject Strategies

The third layer of the model focuses on the output of multi-subject strategies. Its core is to design variable-oriented targeted intervention strategies based on the connotations and mechanisms of the five core variables (learning motivation, self-efficacy, social support, subjective norms, and learning costs), combined with the powers and responsibilities of six key subjects (government, enterprises, public vocational colleges, families, peers, and learners). The goal is to ensure each measure directly acts on the corresponding variable, thereby reducing hindering factors, strengthening motivating factors, and ultimately enhancing adult learners' continuous learning intention.

Government

As the core subject of policy formulation and resource supply, the government's strategy design focuses on alleviating learning costs (a key hindering variable) while strengthening the positive roles of social support and subjective norms, clearing obstacles and creating an enabling atmosphere for adult learning at the institutional level. In terms of special subsidy policies, the government can establish a special fund for adult continuing education in Nanning, formulating differentiated subsidy standards based on learner groups. For example, it can provide tuition subsidies to rural migrant workers, unemployed individuals, and low-income groups to directly reduce economic costs; offer additional learning material subsidies (such as free textbooks and online learning device rentals) to middle-aged and elderly learners and multi-ethnic groups to cover indirect costs; and implement installment tuition payment policies, allowing learners to pay by semester or course to alleviate one-time financial pressure, thereby weakening economic cost as a hindering factor through direct financial support. In terms of free resource integration, the government can build a public service platform for adult continuing education in Nanning, integrating high-quality course resources from the five sampled vocational colleges to launch free premium courses covering academic upgrading, skill

certification, and interest development—learners can register for free with their ID cards, reducing course access costs and strengthening government-led social support through inclusive resource provision. Additionally, the platform can add columns for policy consultation and learning planning to provide free guidance, further activating the informational support dimension of social support. In terms of institutional incentive design, the government can incorporate adult continuing education participation into enterprises' social responsibility evaluation systems, offering tax incentives (e.g., deducting 50% of employees' learning investment from corporate income tax) to encourage enterprises to support employee learning, thereby strengthening enterprise-led social support; implement a learning points system where learners earn points by participating in courses and obtaining certificates, which can be exchanged for public service benefits (e.g., monthly public transport cards, annual cultural venue passes) to reinforce learning motivation through external incentives; and host an annual "Lifelong Learning Week" in Nanning, recognizing adult learning models and learning-oriented families, and promoting typical cases through media to foster a social atmosphere of lifelong learning and enhance the positive impact of subjective norms.

Enterprises

As a key subject of workplace support, enterprises' strategy design centers on closely linking learning with career development, activating employees' continuous learning intention by strengthening learning motivation, providing social support, and reducing learning costs. In terms of financial and time support for education, enterprises can establish a reimbursement system for employees' continuing education expenses, covering a portion of tuition fees for job-related learning programs to directly reduce economic costs; implement a flexible learning work system, granting employees 4–8 hours of paid learning time per month to adjust work rhythms, resolve work-study conflicts, and reduce time costs; and set up an enterprise learning fund, allocating 1% of annual revenue to subsidize employee learning, strengthening organizational social support through corporate resource investment. In terms of linkage with career development, enterprises can develop a mechanism binding learning to promotion, specifying that participation in continuing education and achievement of learning outcomes are prerequisites for job promotion and salary adjustments—for example, technical staff must complete 24 hours of new technology training annually to be eligible for professional title evaluation, and management staff must obtain relevant management certificates to be promoted to middle management—directly linking learning goals to career development and strengthening the career-oriented dimension of learning motivation. They can also customize personalized learning paths for employees, matching learning programs to each promotion stage (from new employee to skilled worker to technical backbone), enabling employees to clearly perceive "learning = development" and further deepening intrinsic motivation. In terms of internal learning ecosystem, enterprises can build internal mentorship learning communities, with technical backbones and senior employees serving as mentors to provide one-on-one guidance for new employees—activating peer support and strengthening subjective norms through the demonstration effect of senior employees—and organize quarterly learning achievement sharing sessions, inviting employees to share learning experiences and skill application cases to enhance other employees' learning motivation through colleagues' success stories and reinforce the subjective norm that learning is a corporate norm.

Public Vocational Colleges

As the direct provider of educational services, public vocational colleges' strategy design focuses on optimizing the learning experience, enhancing learners' continuous participation intention by improving self-efficacy, aligning with learning motivation, and reducing learning costs. In terms of curriculum and teaching innovation, colleges can adopt modular and menu-based curriculum design, splitting courses into small modules (1–2 credits) to allow learners to select academic, certification, or extension modules based on their needs, accurately matching the learning motivation of different groups; promote blended online-offline teaching, ensuring online courses account for no less than 40% to support mobile fragmented learning and arranging offline courses on weekends or evenings to reduce time costs; and offer free preparatory courses on online learning for middle-aged and elderly learners and groups with weak digital skills, teaching operations such as mobile course selection and online assignment submission to address hidden digital barriers. In terms of upgrading support services, colleges can establish dedicated service centers for adult learners, equipped with full-time counselors to provide one-stop services including learning planning, psychological counseling, and technical support—such as developing 3-year undergraduate sprint plans for academic upgrading groups and providing exam preparation guidance for skill certification groups to enhance self-efficacy through clear path planning—offer one-on-one psychological counseling for learners under high pressure to alleviate anxiety and strengthen emotional support, and establish learning mutual assistance groups (grouped by course or interest) with counselors organizing regular group discussions and learning check-ins to activate social support through peer assistance and reinforce learners' sense of achievement through progress feedback, consolidating self-efficacy. In terms of reducing costs and thresholds, colleges can implement a credit bank system, allowing learners to accumulate credits across colleges and majors to avoid repeated learning, reducing time and economic costs; provide work-study positions for low-income groups and rural migrant workers (e.g., library organization, continuing education center assistance) to offset tuition fees, lowering economic barriers through labor-for-resource exchanges; and simplify registration procedures, enabling online registration and document mailing to avoid travel costs for learners.

Family

As the core context for emotional support, family strategy design focuses on creating a supportive learning atmosphere, indirectly enhancing learning motivation by strengthening social support and conveying subjective norms. In terms of emotional and practical support, families can encourage family members to learn together to enhance emotional resonance and strengthen family-based emotional support; for family members participating in continuing education, other family members can take the initiative to share household chores to free up dedicated learning time, resolving time barriers caused by household responsibilities and indirectly reducing learning costs; and organize regular family learning sharing sessions, guiding learners to share progress and providing affirmation and encouragement to enhance learners' self-efficacy through positive feedback. In terms of cognitive and atmosphere guidance, family members can proactively pay attention to adult learners' learning goals, co-formulating monthly learning plans with them to integrate learning goals into daily family planning, strengthening the goal-oriented dimension of learning motivation;

share learning cases of friends and relatives to convey the subjective norm that “learning can change life,” and avoid negative remarks to create a family atmosphere that respects and supports learning, further enhancing the positive impact of subjective norms.

Peer

As a direct source of peer support, peer strategy design focuses on building mutual assistance learning networks, enhancing learners’ self-efficacy by activating social support and strengthening subjective norms. In terms of sharing learning experiences and resources, peers can form learning communities based on courses and learning goals, organizing regular experience sharing sessions where senior learners share exam preparation skills and learning methods, and technical learners share software operation tutorials and practical cases to provide informational support through peer experience exchange; promote resource sharing within communities (e.g., e-textbooks, question banks, notes) to avoid redundant purchases and reduce economic costs; and launch one-on-one tutoring for learners facing difficulties, with top-performing peers providing guidance to enhance the instrumental support dimension of social support. In terms of learning supervision and outcome feedback, peers can implement a learning check-in system where they share daily learning progress in the community to avoid procrastination through group supervision and enhance learners’ sense of achievement through visual progress tracking, improving self-efficacy; organize monthly phased tests, with peers grading papers and discussing mistakes to identify learning gaps and adjust strategies in a timely manner, further consolidating self-efficacy; and promote outstanding learners within the community to strengthen the subjective norm that “learning is common” through peer demonstration, stimulating other learners’ motivation.

Learner

As the main body of learning behavior, learner strategy design focuses on improving autonomous learning capabilities, achieving endogenous enhancement of continuous learning intention by actively managing learning motivation, strengthening self-efficacy, and optimizing learning costs. In terms of goal and plan management, learners can use the SMART principle to set personalized learning goals (e.g., passing the preliminary accounting qualification exam within 6 months), making goals specific, measurable, achievable, relevant, and time-bound to anchor learning motivation through clear objectives; break down long-term goals into weekly, monthly, and phased goals, reviewing progress every Sunday evening—if goals are not met, analyzing the reasons and adjusting plans to improve learning efficiency and indirectly reduce time costs through refined planning. In terms of strengthening motivation and self-efficacy, learners can adopt interest-driven strategies, linking learning content to personal interests (e.g., calligraphy enthusiasts choosing traditional culture and calligraphy courses; housewives focusing on parenting choosing parenting knowledge and family education courses) to enhance intrinsic motivation through interest correlation; establish a learning achievement list to record every small progress and review it regularly to improve self-efficacy through the accumulation of successful experiences; and set tiered reward mechanisms (e.g., rewarding oneself with a movie for completing weekly goals, a favorite book for monthly goals) to reinforce intrinsic motivation through external incentives. In terms of optimizing costs and capabilities, learners can

learn the Eisenhower Matrix for time management, classifying learning tasks by urgency and importance, prioritizing important and urgent tasks, and using fragmented time for important but non-urgent tasks to avoid time waste and reduce time costs; proactively participate in learning strategy training organized by vocational colleges, mastering skills such as speed reading, mind mapping for note-taking, and efficient online course learning to improve learning efficiency, reduce ineffective investment, and indirectly lower energy costs; and conduct regular self-assessments (e.g., monthly mock tests) and adjust learning strategies based on results to improve learning outcomes through targeted adjustments, further strengthening self-efficacy.

5.1.10 Model Implementation Guidelines

Phase 1 (Months 1–6): Identify Adult Learners' Needs

Needs Diagnosis: Vocational colleges should organize learners to complete the "Personal Learning Needs Assessment Questionnaire" to clarify their own hindering factors and learning goals. Vocational colleges, in collaboration with enterprises and communities, should conduct research to identify the core learning needs of adults in the region.

Basic Guarantee: The government should special subsidy policies and launches a public service platform. Enterprises should formulate support systems for employees' continuing education. Vocational colleges should complete the development of the first batch of modular courses and the construction of online platforms.

Atmosphere Building: Vocational colleges and local communities should carry out the "Lifelong Learning Promotion Week" activities, popularizing the value of continuing education through lectures and case-sharing sessions. Communities should form the first batch of learning groups and launch a peer support network.

Phase 2 (Months 6–18): Multi-Subject Joint Strategy Implementation

Full-Scale Rollout: The government should implements tuition subsidy and learning points systems. Enterprises should promote flexible work systems and career development linkage mechanisms. Vocational colleges should carry out blended teaching and exclusive support services.

Dynamic Adjustment: Vocational colleges should collect learners' feedback every 3 months to optimize curriculum content, teaching methods, and support services. They should update "industry-oriented" curriculum modules according to changes in enterprise and industry needs.

Demonstration and Promotion: The government and vocational colleges should select the first batch of "Adult Learning Model Enterprises," "Model Communities," and "Model Learners," and summarize replicable experiences for promotion. Vocational colleges should expand the coverage of online courses, adding over 200 free courses.

Phase 3 (Months 19–36): Form a Social Ecosystem Supporting Continuing Education

Ecosystem Optimization: All stakeholders, led by the municipal government, should establish a positive interactive ecosystem of "government-enterprises-vocational colleges-society-learners," with fixed collaboration mechanisms (e.g., quarterly joint meetings) among all subjects.

Long-Term Mechanisms: The government should incorporate "support for adult continuing education" into its regular work. Enterprises should integrate it into their human resource management systems. Vocational colleges should embed it into their core service functions. All stakeholders should jointly establish a learning effect tracking and evaluation system to continuously optimize strategies.

Expansion and Extension: The government and vocational colleges should promote the mutual recognition of credits between continuing education, general education, and vocational education. They should explore cross-regional cooperation, extending the model's experience to other cities in Guangxi to form a regionally distinctive adult learning ecosystem.

5.2 Conclusion

This study systematically examined the impact mechanisms of learning motivation (LM), self-efficacy (SE), social support (SS), subjective norms (SN), and learning costs (LC) on adult learners' continuous learning intention (CLI) within the context of vocational education in Nanning. By employing a mixed-methods research approach that integrated structural equation modeling (SEM), qualitative interviews, and expert validation, this study constructed and validated a comprehensive integrated model.

The quantitative results strongly supported the hypothesized model. Learning motivation (LM) (H1) demonstrated a significant path to self-efficacy (SE), emphasizing the importance of learning motivation in enhancing adult learners' self-efficacy. This aligns with the views of motivation theory (Locke and Latham, 2002), which highlight the key role of learning motivation in stimulating individual learning behavior. Therefore, vocational colleges should optimize curriculum design and provide personalized learning paths to stimulate the intrinsic learning motivation of adult learners, thereby enhancing their self-efficacy.

Self-efficacy (SE) (H2) demonstrated a significant positive effect on continuous learning intention (CLI), corroborating the findings of self-efficacy theory (Bandura, 1997), which states that self-efficacy can enhance an individual's persistence and effort when facing learning challenges. The items SE2 and SE4 highlight the importance of learning achievement and reveal the necessity of enhancing self-efficacy during the learning process, indicating the need to provide more learning support and resources to help adult learners overcome difficulties.

Social support (SS) (H5) showed a significant positive impact on continuous learning intention (CLI), echoing the conclusions of social support theory (Sarason et al., 1983), which states that social support can provide emotional and material assistance to enhance an individual's learning willingness. The items SS2 and SS4 emphasize the importance of support from family and friends for adult learners' continuous learning intention, indicating the need to establish a broader social support network to help adult learners overcome difficulties in the learning process.

Subjective norms (SN) (H6) also had a significant positive impact on continuous learning intention (CLI), consistent with the views of the Theory of Planned Behavior (Ajzen, 1991), which states that social expectations and norms have an important influence on an individual's behavioral intentions. The items SN3 and SN5 highlight the role of social expectations in promoting adult learners' continuous learning intention,

indicating the need to enhance positive societal expectations for continuing education through publicity campaigns and success stories.

Learning costs (LC) (H7) showed a significant negative impact on the continuous learning intention (CLI), consistent with the views of cost-benefit theory (Liu et al., 2007; Zheng, 2014), which states that increased learning costs can reduce an individual's learning willingness. The items LC3 and LC4 reveal the inhibitory effects of economic and time costs on adult learners' continuous learning intention, indicating the need to reduce learning costs by providing scholarships, flexible learning times, and online learning resources, thereby enhancing adult learners' continuous learning intention.

The results of this study confirm that self-efficacy (SE) and learning motivation (LM) are the strongest predictors of continuous learning intention (CLI), consistent with motivation theory and self-efficacy theory. Subgroup analysis of the continuous learning intention items (CLI1–CLI5) shows that adult learners with stronger learning motivation and self-efficacy consistently report higher mean scores. For example, CLI1 ("I plan to continue participating in continuing education at vocational colleges") and CLI2 ("Even after achieving my current goals, I will continue to participate in continuing education in the future") reflect a significantly stronger continuous learning intention among adult learners with higher learning motivation and self-efficacy. These results indicate that learning motivation and self-efficacy not only provide a rich source of learning enthusiasm but also strengthen adult learners' continuous learning intention and career development.

The results of this study confirm that learning motivation (LM) represents the most prominent positive driver of continuous learning intention (CLI), yielding a total effect of 0.265 that encompasses both direct and indirect pathways; this finding aligns with Motivation Theory and Self-efficacy Theory. Specifically, LM exerts a significant direct effect on CLI ($\beta = 0.218, p < .001$), while self-efficacy (SE) significantly partially mediates this relationship, carrying 29.1% of the total effect (indirect effect = 0.077, 95% CI [0.034, 0.147]). Furthermore, social support (SS; $\beta = 0.228, p < .001$) and subjective norms (SN; $\beta = 0.213, p < .001$) demonstrate significant positive direct effects on CLI, whereas learning costs (LC) exhibit the strongest overall predictive effect ($\beta = -0.252, p < .001$). These results indicate that adult learners with stronger learning motivation and higher self-efficacy tend to display greater continuous learning intention; concurrently, external facilitators such as social support and subjective norms play essential promoting roles, while reducing temporal, economic, and psychological learning barriers remains critical for enhancing sustained participation. Collectively, the formation of continuous learning intention reflects the joint operation of individual-cognitive factors (LM and SE), social-contextual factors (SS and SN), and perceived barrier factors (LC), thereby providing an empirical basis for vocational colleges to formulate targeted continuing education interventions.

Self-efficacy (SE) (H3) was confirmed as a key mediating variable between learning motivation (LM) and continuous learning intention (CLI), accounting for 29.1% of the total motivational effect (indirect effect = 0.077, 95% CI [0.034, 0.147]). The high loadings of SE2 ("Even if I temporarily face setbacks in continuing education, I believe I can overcome difficulties") and SE4 ("In continuing education, I can effectively manage my study time to complete all learning tasks") illustrate the proactive and

reactive responses of adult learners to institutional trust and learning achievement. As shown by Stajkovic et al. (2018), robust self-efficacy is associated with higher learning motivation and less learning burnout.

Overall, learning costs (LC) represent the strongest predictor of continuous learning intention ($\beta = -0.252$), while learning motivation (LM) serves as the most prominent positive driver (total effect = 0.265); self-efficacy (SE) functions as a critical mediating variable that bridges motivation into intention. The mutual corroboration of quantitative and qualitative results validates the applicability and robustness of the proposed model in the specific context. Expert feedback further confirms the model's practical feasibility, appropriateness, and utility, emphasizing its potential for broader application within the vocational education system.

This study makes significant theoretical and practical contributions by constructing and validating a model specifically designed to target the continuous learning intentions of adult learners in vocational education. The model highlights the key roles of learning motivation (LM) and self-efficacy (SE), with social support (SS) and subjective norms (SN) serving as external contextual factors that exert significant positive direct effects on continuous learning intention (CLI), while learning costs (LC) operate as a major barrier factor that exerts a significant negative effect on continuous learning intention. In the continuing education programs of vocational colleges in Nanning, optimizing curriculum design, providing personalized learning paths, establishing learning support networks, reducing learning costs, and enhancing social support can significantly increase adult learners' continuous learning intention.

5.3 Recommendation

Based on an in-depth analysis of continuous learning intention among adult learners in continuing education at vocational colleges in Nanning, this study revealed key factors including learning motivation (LM), self-efficacy (SE), social support (SS), subjective norms (SN), and learning costs (LC), as well as their interrelationship mechanisms. The following recommendations are proposed for theory, practice, and policy based on the study results.

5.3.1 Theoretical Implications

Integration of Multidisciplinary Theories: This study integrated motivation theory, self-efficacy theory, social support theory, and Theory of Planned Behavior to construct a comprehensive theoretical framework that systematically explains the factors influencing adult learners' continuous learning intention and their interrelationship mechanisms. This framework not only provides a new perspective for understanding the psychology and behavior of adult learners but also offers a theoretical foundation for future research.

Identification of Mediating Mechanisms: Through empirical research, this study revealed the mediating role of self-efficacy in the relationship between learning motivation and continuous learning intention. These findings enrich the relevant theories and provide a more comprehensive understanding of adult learners' continuous learning intention.

Consideration of Cultural Context: Conducted in the context of Nanning, this study took into account the characteristics and cultural background of vocational education in China, providing a reference for cross-cultural research. Future research can validate the conclusions of this study in different cultural contexts to test their universality.

5.3.2 Practical Implications

Optimizing Curriculum Design: Vocational colleges should optimize curriculum design to ensure that course content is closely integrated with the occupational needs and personal interests of adult learners. For example, providing course content that is closely linked to actual work can help adult learners see the direct value of learning, thereby enhancing their learning motivation and self-efficacy.

Providing Personalized Learning Paths: Vocational colleges should offer personalized learning paths to help adult learners select appropriate learning content and methods tailored to their needs and goals. For example, using a learning management system (LMS) to provide personalized learning suggestions and resources can improve their continuous learning intention.

Establishing Learning Support Networks: Vocational colleges should establish learning support networks to provide psychological counseling and learning strategy training, helping adult learners overcome learning difficulties. For example, setting up learning advisors and psychological counseling centers can provide timely support and assistance to adult learners.

Reducing Learning Costs: Vocational colleges should reduce learning costs for adult learners by providing scholarships, flexible learning times, and online learning resources. For example, collaborating with enterprises to offer tuition waivers or scholarship programs can alleviate the economic burden on adult learners.

Enhancing Social Support: Vocational colleges should promote positive societal expectations for continuing education through targeted publicity campaigns and sharing success stories. For example, hosting learning outcomes exhibitions and alums sharing sessions can make adult learners feel supported and recognized by society.

5.3.3 Policy Implications

Supporting Structured Continuing Education Pathways: Policymakers should provide detailed policy guidance and additional funding to promote the close integration of continuing education at vocational colleges with industry technical needs. For example, establishing quality standards for continuing education to ensure that educational content aligns with market demands.

Establishing Quality Standards: Policymakers should ensure that continuing education programs have clear quality standards, including curriculum design, teaching methods, and assessment mechanisms. For example, establishing regular course evaluation and feedback mechanisms to ensure educational quality.

Institutionalizing Feedback Mechanisms: Policymakers should implement regular surveys or interviews to systematically collect feedback from adult learners, thereby optimizing the effectiveness of continuing education programs. For example, establishing an online feedback platform allows adult learners to provide timely opinions and suggestions.

5.3.4 Research Limitations

Sample Scope: The sample of this study was limited to adult learners in Nanning and may not fully represent adult learners from other regions or countries.

Data Collection Methods: This study primarily used questionnaires and semi-structured interviews, which may introduce some subjectivity.

Variable Selection: This study selected learning motivation, self-efficacy, social support, subjective norms, and learning costs as key variables, potentially omitting other factors that influence adult learners' continuous learning intention.

5.3.5 Future Research

Expand Research Scope: Future research could expand the sample scope to include adult learners from diverse regions and occupational backgrounds, thereby enhancing the universality and representativeness of the research findings.

Adopt Multiple Data Collection Methods: Future research could combine multiple data collection methods, such as observation and experimentation, to enhance the reliability of the research results.

Explore Other Potential Variables: Future research could further investigate other potential variables, such as the learning environment and teacher quality, to gain a more comprehensive understanding of the factors influencing adult learners' intentions to continue learning.

Cross-Cultural Research: Future research could validate the model in various cultural contexts to test its universality and examine the impact of cultural differences on adult learners' intentions to continue learning.

Longitudinal Tracking Studies: Future research could conduct longitudinal tracking studies to observe changes in adult learners' continuous learning intention at different stages and the dynamic impact of various factors.

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APPENDIX



APPENDIX A: Preliminary Interview Outline

Survey on Factors Influencing Adult Learners' Continuous Learning Intention (Preliminary Interview)

Dear Interview Participant:

Hello! Thank you for participating in this interview on the factors influencing adult learners' intention to continue learning. As society evolves, continuous learning has become an essential pathway for enhancing personal competitiveness and adapting to societal changes. This study focuses on the experiences of adult learners in Nanning who are engaged in continuing education at public vocational colleges, aiming to explore the key factors that influence their intention to continue learning. We aim to provide empirical evidence to help public vocational colleges optimize their continuing education services and enhance educational quality.

This interview will revolve around your personal experiences, challenges encountered, and views on continuous learning during your participation in continuing education at public vocational colleges. Your experiences and insights are extremely valuable to us and will serve as important references for our research. We assure you that the interview content will be strictly confidential and used solely for academic research purposes.

Thank you once again for your support and cooperation! We look forward to an in-depth exchange with you and hope to contribute to the advancement of adult continuing education together!

Xu Xiongbo
Student Siam University

Question	Probe
1 Why did you choose to participate in the continuing education activities at public vocational colleges? 为什么您会选择参与职业院校继续教育活动?	Can you tell me more specifically?
2 What difficulties have you encountered in the process of continuing education? 您在继续教育过程中面临的困难是什么?	Can you tell me more specifically?
3 What factors have influenced your participation in continuing education? 有哪些因素对您参与继续教育产生了影响?	Can you tell me more specifically?
4 What motivates you to continue learning? 您保持持续学习的动力是什么?	Can you tell me more specifically?

APPENDIX B: Preliminary Interview Results

Results of the Survey on Factors Influencing Adult Learners' Intention to Continue Learning (Preliminary Interview)

Interview with Participant A

Interviewer: Hi A, I am pretty curious. What motivated you to decide to participate in continuing education programs at public vocational colleges?

Participant A: I think continuing education is essential for me. You see, I only have a technical secondary school diploma, and I feel pretty limited in my job hunting. I want to upgrade my educational level to have more employment opportunities. Also, I have a friend who successfully advanced her education through continuing education, and her experience has given me confidence. I think if she can do it, then I can, too.

Interviewer: Have you encountered any particular difficulties in pursuing continuing education?

Participant A: Well, the biggest challenge is financial. The tuition and examination fees for continuing education are high, making it challenging to bear the cost alone. Therefore, I had to take out a loan to cover these expenses. Although it does bring some pressure, I believe it is a worthwhile investment. I am willing to take on these responsibilities to have better job opportunities in the future.

Interviewer: Apart from financial factors, are there other factors influencing your decision to pursue continuing education?

Participant A: Yes, first of all, my technical secondary school diploma does not have much competitiveness in society, which makes me feel like I must continue to study and improve myself. Additionally, my family and friends have provided me with support and encouragement. The school has provided a wealth of information on how to successfully advance my education and apply for student loans, which has significantly influenced my decision to continue my education.

Interviewer: I am curious: What keeps you motivated to continue learning?

Participant A: My motivation mainly comes from my family and friends, who have always been supportive and encouraging. Also, the resources and information provided by the school have made me aware of the importance of continuing education and the changes it can bring. Although the learning process is not easy, with their support and help, I feel more confident in persevering and striving for a better future.

Interview with Participant B

Interviewer: Hello, Participant B. First, I want to understand what prompted you to participate in the continuing education activities at public vocational colleges.

Participant B: Hello. I was laid off from my previous job for various reasons. In this situation, I realized that if I wanted to return to the workforce, I would need to learn some new skills. I chose to pursue continuing education, hoping to upgrade my skills and increase my competitiveness in the job market.

Interviewer: What difficulties did you encounter in the process of continuing education?

Participant B: One of the main problems I encountered was that some courses lacked practicality. I can learn theoretical knowledge quite quickly, but applying this knowledge to actual work requires more time and effort to explore and practice. This has been a significant challenge for me.

Interviewer: Were there any factors that influenced you in the process of deciding to continue your education?

Participant B: Yes, my family suggested that I look for a job directly. They might think that I do not need to spend more time studying. However, with my current skills and experience, finding a job directly might be more difficult. So, I decided to enhance my competitiveness by learning first and looking for new job opportunities.

Interviewer: So, what keeps you motivated to continue learning?

Participant B: Actually, the satisfaction of gaining new knowledge through learning is what keeps me going. Every time I master a new skill or understand a new concept, I can feel my overall abilities improving. This sense of achievement and self-improvement is what drives my continuous learning.

Interview with Participant C

Interviewer: Hello, Participant C. You have been working in this field for many years. What prompted you to return to school to continue your education?

Participant C: Hello. Indeed, I have been working for a long time, but I feel that my current income is insufficient to support the quality of life I desire. The opportunities for advancement in my current position are also limited. I aim to develop a side business by acquiring new skills, which can enhance my income and introduce new challenges and opportunities to my professional life.

Interviewer: It sounds like you have a forward-thinking approach. What specific difficulties have you encountered in continuing your education?

Participant C: The biggest challenge is time management. I have a full-time job during the day, classes at night, and on weekends, leaving me with almost no time to rest and relax. Sometimes, I feel like I am being pulled in different directions between work, study, and personal life, and this pressure is indeed quite significant. I have had to sacrifice some time with family and friends, which is a considerable sacrifice.

Interviewer: How do you overcome these difficulties and persist in your studies?

Participant C: A friend of mine successfully developed his side business through continuing education, and his story has greatly inspired me. He not only gained financial freedom but also control over his time. This made me realize that, although it is tough now, all these efforts will be worth it in the long run. His success story has inspired me to believe that I can achieve my goals through learning.

Interviewer: So, what keeps you motivated to continue learning?

Participant C: Continuing education has brought me tangible benefits. First, I successfully started a side business, which gives me an additional source of income. More importantly, the new knowledge and skills I have acquired through continuing education have also helped me perform better in my primary job, enhancing my work efficiency and problem-solving abilities. This sense of achievement and self-improvement is highly satisfying and serves as the driving force behind my continued learning.

Interview with Participant D

Interviewer: Hello, Participant D. Thank you so much for agreeing to this interview today. As a professional working in the healthcare field, what prompted you to go back to school and participate in continuing education activities at public vocational colleges?

Participant D: Hi, thank you. This decision was quite significant for me. I work in a hospital, and I have come to realize that professional certifications are essential for advancing in my career and securing better opportunities. So, I hope to obtain these certifications through continuing education to build a stronger foundation for my career.

Interviewer: I see; that is an efficient goal. What challenges have you encountered on your journey through continuing education?

Participant D: There have been several challenges. The biggest issue is time. As you are aware, the medical staff's work schedule is already packed, and we are sometimes on call around the clock. Finding time to study is difficult. Additionally, some of the course material is quite complex, which can be hard for me to grasp and requires additional time to digest and apply in practice.

Interviewer: Time management and the difficulty of comprehension are indeed significant issues. Were there any people or events that influenced you to keep going during this process?

Participant D: Yes, my family has been incredibly supportive. They understand how busy I am with work and how tough studying is, but they still encourage me to pursue continuing education. Their support is critical; I am not fighting this battle alone. They have even helped with household chores and taking care of the kids when I need to study, which has been an enormous help. Also, I have a colleague who went through a similar program and shared her experience. Her success in obtaining her certification and its positive impact on her career inspired me to persevere.

Interview with Participant E

Interviewer: Hello, Participant E. Thank you so much for taking the time to participate in this interview. First, as a homemaker, I am curious about what led you to engage in continuing education activities at public vocational colleges.

Participant E: Hi, Interviewer. I have always felt that our role as homemakers is not just about taking care of the family; we can also grow and develop ourselves. I believe that participating in continuing education can not only help me be a better parent but also allow me to discover my own value and joy in life.

Interviewer: I see; that is a very positive outlook. So, in continuing education, what difficulties have you encountered?

Participant E: Sometimes, I do not know how to apply the knowledge I have learned to daily life. Also, studying itself can be pretty tiring, especially when you have been busy with household chores and caring for children all day, and then you sit down to study; it can feel exhausting.

Interviewer: Indeed, balancing family and studying is a challenge. In this process, were there any factors that influenced you to keep going?

Participant E: Yes, my family is very supportive. They think that my participation in continuing education is a great decision, which is very important to me. Their support and understanding make me feel warm and motivate me to keep learning.

Interviewer: Family support is key. What motivates you to continue learning?

Participant E: Going to school keeps me in a good emotional state. Staying at home for too long can sometimes be oppressive, but at school, I can interact with diverse people and acquire new knowledge, which makes me feel fulfilled and happy. Moreover, every time I master a new skill or complete a course, that sense of achievement is irreplaceable.

Interview with Participant F

Interviewer: Hello, Participant F. Thank you for agreeing to this interview. First, as a retiree, I would like to ask what prompted you to participate in the continuing education activities at public vocational colleges.

Participant F: Hello, Interviewer. After retiring, I had a lot of free time, and life became dull. I have always been interested in traditional Chinese painting, and when I saw an advertisement for a painting class at the college, I decided to sign up. I want to enrich my retirement life by learning traditional Chinese painting.

Interviewer: Learning traditional Chinese painting sounds like a wonderful hobby. So, in continuing education, what difficulties have you encountered?

Participant F: The teaching process does not mainly accommodate us, older adults. Sometimes, I struggle to keep up with the class's pace and feel overwhelmed. The modern teaching methods are unfamiliar to me, which has presented some challenges in my learning.

Interviewer: That is undoubtedly an issue. So, in your decision to participate in continuing education, what factors influenced you?

Participant F: My friends have encouraged me to join the club. Now, a few of my old friends are in the same class learning together, which makes our learning process more fun. Their companionship and support are important factors in my participation in continuing education.

Interviewer: The companionship of your friends is vital to you. What motivates you to continue learning?

Participant F: Attending class makes me happy. I enjoy painting together with everyone and sharing our work. Moreover, my family is very supportive; they help me register online and are responsible for driving me to class. With their help, I can continue my learning journey more conveniently.

Interview with Participant G

Interviewer: Hello, Participant G. Thank you so much for taking the time out of your busy schedule to participate in today's interview. I am curious: What motivated you to attend these continuing education courses in your spare time?

Participant G: Hi, Interviewer. I have always been very interested in these courses. I am very fond of ink painting and sewing, so I decided to use my free time to learn these skills. It is a way for me to enrich myself and pursue my interests.

Interviewer: It sounds like you have a real passion for these courses. So, in continuing education, what difficulties have you encountered?

Participant G: Well, there have been some challenges. For instance, the commute to school is quite long, which can be tiring, in addition to the demands of studying. Additionally, the tuition fees are high, posing a significant financial burden.

Interviewer: Those are indeed practical issues that need to be considered. So, what initially prompted you to learn about and pursue continuing education?

Participant G: Actually, it was the online promotion about continuing education that first caught my attention. I came across a lot of positive information about it, which encouraged me to learn more, and eventually, I decided to try these courses.

Interviewer: The influence of online promotion is indeed significant. What motivates you to continue learning?

Participant G: Whenever I complete work in class and share it on social media, I receive a lot of praise from friends and online acquaintances, which makes me proud. This positive feedback and recognition drive me to keep learning, making the learning process even more enjoyable for me.

Interview with Participant H

Interviewer: Hello, Participant H. Thank you for accepting our interview today. First, I would like to ask what made you decide to participate in continuing education activities at public vocational colleges.

Participant H: Hello. I was unemployed, and my family suggested that I learn new skills. They thought that this would allow me to switch careers and find a good job. My motivation to learn was average, but considering my family's expectations, I decided to give it a try.

Interviewer: I see that your family's support and advice are critical to you. So, what difficulties have you encountered in the process of continuing education?

Participant H: To have enough time to attend these courses, I had to turn down some job opportunities. It was a tough decision because I had to temporarily give up some income. However, I believe that continuing education is more beneficial for my career development in the long run.

Interviewer: That decision certainly took much courage. So, what factors have influenced you in your continuing education experience?

Participant H: My family has had the most significant influence on me. They have always emphasized that I must acquire new skills through learning; otherwise, I might not have come to participate in continuing education. Their thoughts and expectations are an important reason why I persevered.

Interviewer: The expectations and encouragement from your family are significant to you. What motivates you to continue learning?

Participant H: Yes, my family has been very encouraging. I also believe that continuing to learn can help me gain societal recognition, which is especially important for someone my age. I want to prove through learning that I still have the ability and can contribute to society.

APPENDIX C: Index of Item Objective Congruence

DEVELOPMENT OF A MODEL FOR THE CONTINUOUS LEARNING INTENTION OF ADULT LEARNERS IN VOCATIONAL COLLEGES IN NANNING, CHINA

Xu Xiongbo

徐雄波

PhD in Educational Administration Innovation

教育管理创新博士

Research Question

- 1)What is the current level of continuous learning intention among adult learners in Nanning City, China?
- 2)Which factors in the continuing education activities of public vocational colleges influence adult learners' continuous learning intention?
- 3)What empirically based model can be proposed to enhance adult learners' continuous learning intention in the continuing education activities of public vocational colleges?
- 4)Based on this model, what strategies can public vocational colleges adopt to improve the quality of their continuing education?

Research Objectives

- 1)To assess the level of continuous learning intention among adult learners in Nanning City, China.
- 2)To identify and analyze the relevant factors influencing adult learners' continuous learning intention in the continuing education activities of public vocational colleges.
- 3)To construct a model to enhance the continuous learning intention of adult learners in the continuing education activities of public vocational colleges.
- 4)Based on the research model, to analyze the relevant strategies for public vocational colleges to improve the quality of their continuing education.

Instruction

This IOC instrument aims to gather insights from specialists regarding the alignment of all embedded questions with the research goals and the clarity of term definitions within this survey. The guidelines for the IOC assessment are outlined as follows.

+1=Congruent

0= Questionable

-1= Incongruent

Self-efficacy (SE) Self-efficacy refers to adult learners' subjective judgments and evaluations of their ability to complete continuing education in public vocational colleges. 自我效能指成人学习者对自己能否成功完成职业院校继续教育的主观判断与评价。	Expert Opinion			Remark
	1	0	-1	
SE1. I believe I can achieve good results in continuing education at public vocational colleges. 我相信自己有能力在职业院校继续教育中取得好成果。				
SE2. Even facing setbacks in continuing education, I believe I can overcome challenges. 即使在继续教育中面临挫折，我也相信我有能力克服困难。				
SE3. I believe that I am not capable of achieving success in continuing education at public vocational colleges. (R) 我认为我没有能力在职业院校继续教育中获得成功。(R)				
SE4. In continuing education, I can effectively manage my study time to complete all learning tasks. 在继续教育中，我能够有效地管理我的学习时间，以完成所有的学习任务。				
SE5. Even if I temporarily face setbacks in continuing education, I can persist in continuing my studies. 即使我在继续教育中暂时面临挫折，我也能够坚持继续学习。				
Learning Motivation (LM) Learning motivation refers to the intrinsic psychological state or tendency that drives adult learners to participate in continuing education at public vocational colleges, maintain their learning behavior, and direct them towards learning goals. 学习动机是指驱动成人学习者参与职业院校继续教育，维持学习行为，并导向学习目标的内在心理状态或倾向。	1	0	-1	
LM1. I am passionate about learning new knowledge and often actively seek out learning opportunities. 我对学习新知识充满热情，并且经常主动寻找继续学习机会。				
LM2. I believe that by continuously learning, I can improve my skills and abilities.				

我认为通过参与继续学习,可以提高我的技能和能力。				
LM3. To gain a group's respect, I will join continuing education activities. 为了在集体中获得好名声,我愿意参与继续教育活动。				
LM4. I have little interest in participating in continuing education. (R) 我对参与继续教育没有太大的兴趣。(R)				
LM5. I am happy to help others learn and progress in their continuing education, even if it means dedicating my own time and effort. 我很乐意在继续教育中帮助他人学习和进步,即使这可能会花费我自己的时间和精力。				
Social Support (SS) Social support refers to the emotional, informational, material, and other forms of support that adult learners receive from family, friends, the community, or other members of their social network, which they use to cope with difficulties and challenges in the process of continuing education. 社会支持是指成人学习者从家庭、朋友、社区或其他社会网络成员那里获得的情感、信息、物质等方面的支持,并运用支持应对继续教育过程中的困难与挑战。	1	0	-1	
SS1. During my participation in continuing education, my family and friends provide me with material support. 在参与继续教育过程中,我的亲朋好友给予我物质上的支持。				
SS2. During my participation in continuing education, my family and friends provide me with emotional support. 在参与继续教育过程中,我的亲朋好友给予我情感上的支持。				
SS3. I can effectively utilize the help provided by others to overcome various learning challenges. 我能有效利用外界给我的帮助来克服学习中的各类问题。				
SS4. When I encounter difficulties in continuing education, I actively seek help from external sources. 当我在继续教育中遇到困难时,会主动向外界寻求帮助。				
SS5. In continuing education, I rarely receive recognition and assistance from others. (R) 在继续教育中,我很少接受他人的认可和帮助。(R)				

Subjective Norms (SN) Subjective norm refers to the social pressure that adult learners feel when deciding to participate in continuing education at public vocational colleges. This pressure typically originates from the expectations and opinions of acquaintances, such as friends and family, regarding the learners' behavior. 主观规范是指成人学习者在做出参与职业院校继续教育决策时所感受到的社会压力。这种压力通常来源于亲朋好友等熟人对学习行为期望和看法。	1	0	-1	
SN1. My family and friends approve of my participation in continuing education at public vocational colleges. 我的亲朋好友赞同我参与职业院校继续教育。				
SN2. I have friends and relatives who are also involved in continuing education at public vocational colleges. 我有亲朋好友同样参与职业院校继续教育。				
SN3. My family and friends are relatively satisfied with continuing education at public vocational colleges. 我的亲朋好友对职业院校继续教育比较满意。				
SN4. I do not care about my friends and relatives' opinions on my participation in continuing education. (R) 我不在意亲朋好友对我参与继续教育的看法。(R)				
SN5. My family and friends hope that I will participate in continuing education at public vocational colleges. 我的亲朋好友希望我参与职业院校继续教育。				
Learning Costs (LC) Learning cost refers to the total sum of time, money, energy, and other resources that learners invest in the process of participating in continuing education at public vocational colleges, including both direct and indirect costs. 学习成本是指学习者在参与职业院校继续教育过程中所投入的时间、金钱、精力以及其他资源的总和，包括直接成本和间接成本。	1	0	-1	
LC1. I have incurred a relatively high economic cost to participate in continuing education at public vocational colleges. 我花费了较高的经济成本参与职业院校继续教育。				
LC2. I have spent a considerable amount of time participating in continuing education at public vocational colleges.				

我花费了较多的时间成本参与职业院校继续教育。				
LC3. To participate in continuing education at public vocational colleges, I have foregone other valuable opportunities. 为参与职业院校继续教育，我放弃了其它有价值的机会。				
LC4. During my participation in continuing education at public vocational colleges, I have experienced some negative emotions. 在参与职业院校继续教育过程中，我承受了一定的负面情绪。				
LC5. During the process of continuing education, I have hardly paid any significant price worth mentioning. (R) 我在继续教育过程中，几乎没有付出值得在意的代价。(R)				
Continuous Learning Intention (CLI) Continuous learning intention refers to the motivation and willingness of adult learners to continue participating in vocational college continuing education after completing a phase of continuing education. 持续学习意愿指成人学习者在完成阶段性的继续教育后，仍愿意继续参与职业院校继续教育的动机和意愿。	1	0	-1	
CLI1. I plan to continue participating in continuing education at public vocational colleges. 我计划继续参加职业学院的继续教育。				
CLI2. Even after achieving current goals, I will continue to participate in continuing education in the future. 即使实现了目前的目标，我将来也会继续参加继续教育。				
CLI3. I will keep attending vocational college continuing education, not other methods. 我会继续参加职业学院的继续教育，而不是其他方式。				
CLI4. Upon completing my current studies, I won't rejoin the vocational college for continuing education. (R) 在完成目前的学习后，我不会重新加入职业学院继续教育。(R)				
CLI5. I believe that continuous participation in continuing education at public vocational colleges is beneficial to me. 我相信继续参加职业学院的继续教育对我有益。				

APPENDIX D: Expert IOC Review Results

Expert 1

Instruction

This IOC instrument aims to gather insights from specialists regarding the alignment of all embedded questions with the research goals and the clarity of term definitions within this survey. The guidelines for the IOC assessment are outlined as follows.

+1=Congruent

0= Questionable

-1= Incongruent

Self-efficacy (SE) Self-efficacy refers to adult learners' subjective judgments and evaluations of their ability to complete continuing education in public vocational colleges successfully. 自我效能指成人学习者对自己能否成功完成职业院校继续教育的主观判断与评价。	Expert Opinion			Remark
	1	0	-1	
SE1. I believe I can achieve good results in continuing education at public vocational colleges. 我相信自己有能力在职业院校继续教育中取得好成果。	√			
SE2. Even facing setbacks in continuing education, I believe I can overcome challenges. 即使在继续教育中面临挫折，我也相信我有能力克服困难。	√			
SE3. I believe that I am not capable of achieving success in continuing education at public vocational colleges. (R) 我认为我没有能力在职业院校继续教育中获得成功。(R)	√			
SE4. In continuing education, I can effectively manage my study time to complete all learning tasks. 在继续教育中，我能够有效地管理我的学习时间，以完成所有的学习任务。	√			
SE5. Even if I temporarily face setbacks in continuing education, I can persist in continuing my studies. 即使我在继续教育中暂时面临挫折，我也能够坚持继续学习。	√			
Learning Motivation (LM) Learning motivation refers to the intrinsic psychological state or tendency that drives adult learners to participate in continuing education at public vocational colleges, maintains their learning behavior, and directs them towards	1	0	-1	

learning goals. 学习动机是指驱动成人学习者参与职业院校继续教育，维持学习行为，并导向学习目标的内在心里状态或倾向。				
LM1. I am passionate about learning new knowledge and often actively seek out learning opportunities. 我对学习新知识充满热情，并且经常主动寻找继续学习机会。	√			
LM2. I believe that by continuously learning, I can improve my skills and abilities. 我认为通过参与继续教育,可以提高我的技能和能力。		√		This item is more like self-efficacy
LM3. To gain a group's respect, I'll join continuing education activities. 为了在集体中获得好名声，我愿意参与继续教育活动。	√			
LM4. I have little interest in participating in continuing education. (R) 我对参与继续教育没有太大的兴趣。（R）	√			
LM5. I am happy to help others learn and progress in continuing education, even if it may cost me my own time and effort. 我很乐意在继续教育中帮助他人学习和进步，即使这可能会花费我自己的时间和精力。			√	It is not Motivation to learn. It is more like willing to help.
Social Support (SS) Social support refers to the emotional, informational, material, and other forms of support that adult learners receive from family, friends, the community, or other members of their social network, which they use to cope with difficulties and challenges in the process of continuing education. 社会支持是指成人学习者从家庭、朋友、社区或其他社会网络成员那里获得的情感、信息、物质等方面的支持，并运用支持应对继续教育过程中的困难与挑战。	1	0	-1	
SS1. During my participation in continuing education, my family and friends provide me with material support. 在参与继续教育过程中，我的亲朋好友给予我物质上的支持。	√			

SS2. During my participation in continuing education, my family and friends provide me with emotional support. 在参与继续教育过程中，我的亲朋好友给予我情感上的支持。	√			
SS3. I can effectively utilize the help provided by others to overcome various problems in learning. 我能有效利用外界给我的帮助来克服学习中的各类问题。		√		
SS4. When I encounter difficulties in continuing education, I actively seek help from external sources. 当我在继续教育中遇到困难时，会主动向外界寻求帮助。			√	When I encounter difficulties in continuing education, I definitely can get help from external sources
SS5. In continuing education, I rarely receive recognition and assistance from others. (R) 在继续教育中，我很少接受他人的认可和帮助。(R)	√			
Subjective Norms (SN) Subjective norm refers to the social pressure that adult learners feel when deciding to participate in continuing education at public vocational colleges. This pressure typically originates from the expectations and opinions of acquaintances, such as friends and family, regarding the learners' behavior. 主观规范是指成人学习者在做出参与职业院校继续教育决策时所感受到的社会压力。这种压力通常来源于亲朋好友等熟人对学生行为的期望和看法。	1	0	-1	
SN1. My family and friends approve of my participation in continuing education at public vocational colleges. 我的亲朋好友赞同我参与职业院校继续教育。		√		My family and friends expect me to actively participatee

				in continuing education at vocational colleges
SN2. I have friends and relatives who are also involved in continuing education at public vocational colleges. 我有亲友好友同样参与职业院校继续教育。		√		I have friends and relatives who encourage to do well in continuing education at vocational colleges.
SN3. My family and friends are relatively satisfied with continuing education at public vocational colleges. 我的亲朋好友对职业院校继续教育比较满意。		√		My family and friends are waiting to see my success in continuing education at vocational colleges
SN4. I do not care about my friends and relatives' opinions on my participation in continuing education. (R) 我不在意亲朋好友对我参与继续教育的看法。(R)	√			
SN5. My family and friends hope that I will participate in continuing education at public vocational colleges. 我的亲朋好友希望我参与职业院校继续教育。	√			
Learning Costs (LC) Learning cost refers to the total sum of time, money, energy, and other resources that learners invest in the process of participating in continuing education at public vocational colleges, including both direct and indirect costs.	1	0	-1	

学习成本是指学习者在参与职业院校继续教育过程中所投入的时间、金钱、精力以及其他资源的总和，包括直接成本和间接成本。				
LC1. I have incurred a relatively high economic cost to participate in continuing education at public vocational colleges. 我花费了较高的经济成本参与职业院校继续教育。	√			
LC2. I have spent a considerable amount of time participating in continuing education at public vocational colleges. 我花费了较多的时间成本参与职业院校继续教育。	√			
LC3. To participate in continuing education at public vocational colleges, I have foregone other valuable opportunities. 为参与职业院校继续教育，我放弃了其它有价值的机会。			√	
LC4. During my participation in continuing education at public vocational colleges, I have experienced some negative emotions and invested not only money but also my emotions and efforts. 在参与职业院校继续教育过程中，我承受了一定的负面情绪。	√			
LC5. During the process of continuing education, I have hardly paid any significant price worth mentioning. (R) 我在继续教育过程中，几乎没有付出值得在意的代价。(R)	√			
Continuous Learning Intention (CLI) Continuous learning intention refers to the motivation and willingness of adult learners to continue participating in vocational college continuing education after completing a phase of continuing education. 持续学习意愿指成人学习者在完成阶段性的继续教育后，仍愿意继续参与职业院校继续教育的动机和意愿。	1	0	-1	
CLI1. I plan to continue participating in continuing education at public vocational colleges. 我计划继续参加职业学院的继续教育。	√			
CLI2. Even after achieving current goals, I will continue to participate in continuing education in the future. 即使实现了目前的目标，我将来也会继续参加继续教育。	√			
CLI3. I will continue attending vocational college for	√			

continuing education, rather than pursuing other methods. 我会继续参加职业学院的继续教育，而不是其他方式。				
CLI4. Upon completing my current studies, I will not return to the vocational college for further education. (R) 在完成目前的学习后，我不会重新加入职业学院继续教育。(R)	√			
CLI5.I believe that continuous participation in continuing education at public vocational colleges is beneficial to me. 我相信继续参加职业学院的继续教育对我有益。		√		

Expert's name: Sungworn Ngudgratoke

Review date: 19/06/2025

Thank you very much for your valuable comments.

Graduate School of Educational Administration Innovation

Siam University

PhD Xu Xiongbo

ID 6419000026

sungworn

Expert 2

Instruction

This IOC instrument aims to gather insights from specialists regarding the alignment of all embedded questions with the research goals and the clarity of term definitions within this survey. The guidelines for the IOC assessment are outlined as follows.

+1=Congruent

0= Questionable

-1= Incongruent

Self-efficacy (SE) Self-efficacy refers to adult learners' subjective judgments and evaluations of their ability to complete continuing education in public vocational colleges. 自我效能指成人学习者对自己能否成功完成职业院校继续教育的主观判断与评价。	Expert Opinion			Remark
	1			
SE1. I believe I can achieve good results in continuing education at public vocational colleges. 我相信自己有能力在职业院校继续教育中取得好成果。	1			
SE2. Even facing setbacks in continuing education, I believe I can overcome challenges. 即使在继续教育中面临挫折，我也相信我有能力克服困难。	1			
SE3. I believe that I am not capable of achieving success in continuing education at public vocational colleges. (R) 我认为我没有能力在职业院校继续教育中获得成功。(R)	1			
SE4. In continuing education, I can effectively manage my study time to complete all learning tasks. 在继续教育中，我能够有效地管理我的学习时间，以完成所有的学习任务。	1			
SE5. Even if I temporarily face setbacks in continuing education, I can persist in continuing my studies. 即使我在继续教育中暂时面临挫折，我也能够坚持继续学习。			-1	与 SE2.可能有重复
Learning Motivation (LM) Learning motivation refers to the intrinsic psychological state or tendency that drives adult learners to participate in continuing education at public vocational colleges, maintain their learning behavior, and directs them towards learning goals. 学习动机是指驱动成人学习者参与职业院校继续教	1			Remark

育, 维持学习行为, 并导向学习目标的内在心里状态或倾向。				
LM1. I am passionate about learning new knowledge and often actively seek out learning opportunities. 我对学习新知识充满热情, 并且经常主动寻找继续学习机会。	1			
LM2. I believe that by continuously learning, I can improve my skills and abilities. 我认为通过参与继续学习, 可以提高我的技能和能力。	1			
LM3. To gain a group's respect, I will join continuing education activities. 为了在集体中获得好名声, 我愿意参与继续教育活动。	1			
LM4. I have little interest in participating in continuing education. (R) 我对参与继续教育没有太大的兴趣。(R)	1			
LM5. I am happy to help others learn and progress in their continuing education, even if it means dedicating my own time and effort. 我很乐意在继续教育中帮助他人学习和进步, 即使这可能会花费我自己的时间和精力。			-1	与参加持续学习意图并不存在着必然关系
Social Support (SS) Social support refers to the emotional, informational, material, and other forms of support that adult learners receive from family, friends, the community, or other members of their social network, which they use to cope with difficulties and challenges in the process of continuing education. 社会支持是指成人学习者从家庭、朋友、社区或其他社会网络成员那里获得的情感、信息、物质等方面的支持, 并运用支持应对继续教育过程中的困难与挑战。	1			
SS1. During my participation in continuing education, my family and friends provide me with material support. 在参与继续教育过程中, 我的亲朋好友给予我物质上	1			

的支持。				
SS2. During my participation in continuing education, my family and friends provide me with emotional support. 在参与继续教育过程中，我的亲朋好友给予我情感上的支持。	1			
SS3. I can effectively utilize the help provided by others to overcome various learning challenges. 我能有效利用外界给我的帮助来克服学习中的各类问题。	1			
SS4. When I encounter difficulties in continuing education, I actively seek help from external sources. 当我在继续教育中遇到困难时，会主动向外界寻求帮助。	1			
SS5. In continuing education, I rarely receive recognition and assistance from others. (R) 在继续教育中，我很少接受他人的认可和帮助。(R)	1			
Subjective Norms (SN) Subjective norm refers to the social pressure that adult learners feel when deciding to participate in continuing education at public vocational colleges. This pressure typically originates from the expectations and opinions of acquaintances, such as friends and family, regarding the learners' behavior. 主观规范是指成人学习者在做出参与职业院校继续教育决策时所感受到的社会压力。这种压力通常来源于亲朋好友等熟人对学习行为者的期望和看法。	1			
SN1. My family and friends approve of my participation in continuing education at public vocational colleges. 我的亲朋好友赞同我参与职业院校继续教育。	1			
SN2. I have friends and relatives who are also involved in continuing education at public vocational colleges. 我有亲友好友同样参与职业院校继续教育。	1			
SN3. My family and friends are relatively satisfied with continuing education at public vocational colleges. 我的亲朋好友对职业院校继续教育比较满意。	1			
SN4. I do not care about my friends and relatives' opinions on my participation in continuing education. (R) 我不在意亲朋好友对我参与继续教育的看法。(R)	1			

SN5. My family and friends hope that I will participate in continuing education at public vocational colleges. 我的亲朋好友希望我参与职业院校继续教育。	1			
Learning Costs (LC) Learning cost refers to the total sum of time, money, energy, and other resources that learners invest in the process of participating in continuing education at public vocational colleges, including both direct and indirect costs. 学习成本是指学习者在参与职业院校继续教育过程中所投入的时间、金钱、精力以及其他资源的总和，包括直接成本和间接成本。	1			
LC1. I have incurred a relatively high economic cost to participate in continuing education at public vocational colleges. 我花费了较高的经济成本参与职业院校继续教育。	1			
LC2. I have spent a considerable amount of time participating in continuing education at public vocational colleges. 我花费了较多的时间成本参与职业院校继续教育。	1			
LC3. To participate in continuing education at public vocational colleges, I have foregone other valuable opportunities. 为参与职业院校继续教育，我放弃了其它有价值的机会。	1			
LC4. During my participation in continuing education at public vocational colleges, I have experienced some negative emotions. 在参与职业院校继续教育过程中，我承受了一定的负面情绪。	1			
LC5. During the process of continuing education, I have hardly paid any significant price worth mentioning. (R) 我在继续教育过程中，几乎没有付出值得在意的代价。(R)	1			
Continuous Learning Intention (CLI) Continuous learning intention refers to the motivation and willingness of adult learners to continue participating in vocational college continuing education after completing a	1			

phase of continuing education. 持续学习意愿指成人学习者在完成阶段性的继续教育后，仍愿意继续参与职业院校继续教育的动机和意愿。				
CLI1. I plan to continue participating in continuing education at public vocational colleges. 我计划继续参加职业学院的继续教育。	1			
CLI2. Even after achieving current goals, I will continue to participate in continuing education in the future. 即使实现了目前的目标，我将来也会继续参加继续教育。	1			
CLI3. I will continue attending vocational college for continuing education, rather than pursuing other methods. 我会继续参加职业学院的继续教育，而不是其他方式。	1			
CLI4. Upon completing my current studies, I will not return to the vocational college for further education. (R) 在完成目前的学习后，我不会重新加入职业学院继续教育。(R)	1			
CLI5. I believe that continuous participation in continuing education at public vocational colleges is beneficial to me. 我相信继续参加职业学院的继续教育对我有益。	1			

Expert's name: Arlyne Marasigan

Review date: 20/06/2025

Thank you very much for your valuable comments.

Graduate School of Educational Administration Innovation

Siam University

PhD Xu Xiongbo

ID 6419000026



Expert 3

Instruction

This IOC instrument aims to gather insights from specialists regarding the alignment of all embedded questions with the research goals and the clarity of term definitions within this survey. The guidelines for the IOC assessment are outlined as follows.

+1=Congruent

0= Questionable

-1= Incongruent

Self-efficacy (SE) Self-efficacy refers to adult learners' subjective judgments and evaluations of their ability to complete continuing education in public vocational colleges. 自我效能指成人学习者对自己能否成功完成职业院校继续教育的主观判断与评价。	Expert Opinion			Remark
	1			
SE1. I believe I can achieve good results in continuing education at public vocational colleges. 我相信自己有能力在职业院校继续教育中取得好成果。	1			
SE2. Even facing setbacks in continuing education, I believe I can overcome challenges. 即使在继续教育中面临挫折，我也相信我有能力克服困难。	1			
SE3. I believe that I am not capable of achieving success in continuing education at public vocational colleges. (R) 我认为我没有能力在职业院校继续教育中获得成功。(R)	1			
SE4. In continuing education, I can effectively manage my study time to complete all learning tasks. 在继续教育中，我能够有效地管理我的学习时间，以完成所有的学习任务。	1			
SE5. Even if I temporarily face setbacks in continuing education, I can persist in continuing my studies. 即使我在继续教育中暂时面临挫折，我也能够坚持继续学习。	1			
Learning Motivation (LM) Learning motivation refers to the intrinsic psychological state or tendency that drives adult learners to participate in continuing education at public vocational colleges, maintain their learning behavior, and directs them towards learning goals. 学习动机是指驱动成人学习者参与职业院校继续教	1			Remark

育, 维持学习行为, 并导向学习目标的内在心里状态或倾向。				
LM1. I am passionate about learning new knowledge and often actively seek out learning opportunities. 我对学习新知识充满热情, 并且经常主动寻找继续学习机会。	1			
LM2. I believe that by continuously learning, I can improve my skills and abilities. 我认为通过参与继续学习, 可以提高我的技能和能力。	1			
LM3. To gain a group's respect, I will join continuing education activities. 为了在集体中获得好名声, 我愿意参与继续教育活动。	1			
LM4. I have little interest in participating in continuing education. (R) 我对参与继续教育没有太大的兴趣。(R)	1			
LM5. I am happy to help others learn and progress in their continuing education, even if it means dedicating my own time and effort. 我很乐意在继续教育中帮助他人学习和进步, 即使这可能会花费我自己的时间和精力。		0		关系不大
Social Support (SS) Social support refers to the emotional, informational, material, and other forms of support that adult learners receive from family, friends, the community, or other members of their social network, which they use to cope with difficulties and challenges in the process of continuing education. 社会支持是指成人学习者从家庭、朋友、社区或其他社会网络成员那里获得的情感、信息、物质等方面的支持, 并运用支持应对继续教育过程中的困难与挑战。	1			
SS1. During my participation in continuing education, my family and friends provide me with material support. 在参与继续教育过程中, 我的亲朋好友给予我物质上的支持。	1			
SS2. During my participation in continuing education, my	1			

family and friends provide me with emotional support. 在参与继续教育过程中，我的亲朋好友给予我情感上的支持。				
SS3. I can effectively utilize the help provided by others to overcome various learning challenges. 我能有效利用外界给我的帮助来克服学习中的各类问题。	1			
SS4. When I encounter difficulties in continuing education, I actively seek help from external sources. 当我在继续教育中遇到困难时，会主动向外界寻求帮助。	1			
SS5. In continuing education, I rarely receive recognition and assistance from others. (R) 在继续教育中，我很少接受他人的认可和帮助。(R)	1			
Subjective Norms (SN) Subjective norm refers to the social pressure that adult learners feel when deciding to participate in continuing education at public vocational colleges. This pressure typically originates from the expectations and opinions of acquaintances, such as friends and family, regarding the learners' behavior. 主观规范是指成人学习者在做出参与职业院校继续教育决策时所感受到的社会压力。这种压力通常来源于亲朋好友等熟人对学习行为期望和看法。	1			
SN1. My family and friends approve of my participation in continuing education at public vocational colleges. 我的亲朋好友赞同我参与职业院校继续教育。	1			
SN2. I have friends and relatives who are also involved in continuing education at public vocational colleges. 我有亲友好友同样参与职业院校继续教育。	1			
SN3. My family and friends are relatively satisfied with continuing education at public vocational colleges. 我的亲朋好友对职业院校继续教育比较满意。	1			
SN4. I do not care about my friends and relatives' opinions on my participation in continuing education. (R) 我不在意亲朋好友对我参与继续教育的看法。(R)	1			
SN5. My family and friends hope that I will participate in continuing education at public vocational colleges.	1			

我的亲朋好友希望我参与职业院校继续教育。				
Learning Costs (LC) Learning cost refers to the total sum of time, money, energy, and other resources that learners invest in the process of participating in continuing education at public vocational colleges, including both direct and indirect costs. 学习成本是指学习者在参与职业院校继续教育过程中所投入的时间、金钱、精力以及其他资源的总和，包括直接成本和间接成本。	1			
LC1. I have incurred a relatively high economic cost to participate in continuing education at public vocational colleges. 我花费了较高的经济成本参与职业院校继续教育。	1			
LC2. I have spent a considerable amount of time participating in continuing education at public vocational colleges. 我花费了较多的时间成本参与职业院校继续教育。	1			
LC3. To participate in continuing education at public vocational colleges, I have foregone other valuable opportunities. 为参与职业院校继续教育，我放弃了其它有价值的机会。	1			
LC4. During my participation in continuing education at public vocational colleges, I have experienced some negative emotions. 在参与职业院校继续教育过程中，我承受了一定的负面情绪。	1			
LC5. During the process of continuing education, I have hardly paid any significant price worth mentioning. (R) 我在继续教育过程中，几乎没有付出值得在意的代价。(R)	1			
Continuous Learning Intention (CLI) Continuous learning intention refers to the motivation and willingness of adult learners to continue participating in vocational college continuing education after completing a phase of continuing education. 持续学习意愿指成人学习者在完成阶段性的继续教育	1			

后，仍愿意继续参与职业院校继续教育的动机和意愿。				
CLI1. I plan to continue participating in continuing education at public vocational colleges. 我计划继续参加职业学院的继续教育。	1			
CLI2. Even after achieving current goals, I will continue to participate in continuing education in the future. 即使实现了目前的目标，我将来也会继续参加继续教育。	1			
CLI3. I will continue attending vocational college for continuing education, rather than pursuing other methods. 我会继续参加职业学院的继续教育，而不是其他方式。	1			
CLI4. Upon completing my current studies, I will not return to the vocational college for further education. (R) 在完成目前的学习后，我不会重新加入职业学院继续教育。(R)	1			
CLI5. I believe that continuous participation in continuing education at public vocational colleges is beneficial to me. 我相信继续参加职业学院的继续教育对我有益。	1			

Expert's name: _____ Fang Xujun _____

Review date: _____ 20/06/2025 _____

Thank you very much for your valuable comments.

Graduate School of Educational Administration Innovation

Siam University

PhD Xu Xiongbo

ID 6419000026

方绪军



SU.0210.04/ 22

Graduate School of Education
Siam University
38 Phet Kasem Rd, Bang Wa
Phasi Charoen, Bangkok 10160

June 2025

Dear Associate Professor Sungworn Ngudgratoke,

You hold a Ph.D. in Measurement and Quantitative Methods from Michigan State University. You currently serve as an Associate Professor at Michigan State University.

Subject: Invitation to Serve as an Expert for Evaluating the Index of Item-Objective Congruence (IOC) of Research Instruments

Since Mr. Xu Xiongbo, student ID 6419000026 a doctoral student in Degree of Doctor of Philosophy in Educational Administration Innovation, works on a dissertation "Developing an Effective Model of Adult Learners' Intention to Continue Learning Through VOCATIONAL COLLEGES in Nanning, China" with Assoc. Prof. Dr. Jomphong Mongkhonvannit (the advisor) and Assoc. Prof. Dr. Boonmee Nenyod (the co-advisor), the Graduate School of Education would like to invite you to be an expert to provide your opinion in the Graduate School of Education would like to invite you to be an expert to examine the research tools.

The questionnaire addressing the current circumstances is a crucial instrument in this research. Therefore, an evaluation using the Index of Item-Objective Congruence (IOC) is required to ensure the validity of the research tools. Mr. Xu Xiongbo will be in direct contact with you to coordinate all relevant details.

We sincerely appreciate your support and valuable contribution to this research.

Best Regards

A handwritten signature in blue ink, appearing to read 'Chanita', is written over a large, faint watermark of the Siam University seal.

Professor Emeritus Dr. Chanita Rukspollmuang

Dean of Graduate School of Education



SU.0210.04/ 22

Graduate School of Education
Siam University
38 Phet Kasem Rd, Bang Wa
Phasi Charoen, Bangkok 10160

June 2025

Dear Professor Arlyne Marasigan,

You hold a Doctor of Education from Jose Rizal University. You currently serve as a Professor at the Graduate School Division, Jose Rizal University.

Subject: Invitation to Serve as an Expert for Evaluating the Index of Item-Objective Congruence (IOC) of Research Instruments

Since Mr. Xu Xiongbo, student ID 6419000026 a doctoral student in Degree of Doctor of Philosophy in Educational Administration Innovation, works on a dissertation "Developing an Effective Model of Adult Learners' Intention to Continue Learning Through VOCATIONAL COLLEGES in Nanning, China" with Assoc. Prof. Dr. Jomphonng Mongkhonvannit (the advisor) and Assoc. Prof. Dr. Boonmee Nenyod (the co-advisor), the Graduate School of Education would like to invite you to be an expert to provide your opinion in the Graduate School of Education would like to invite you to be an expert to examine the research tools.

The questionnaire addressing the current circumstances is a crucial instrument in this research. Therefore, an evaluation using the Index of Item-Objective Congruence (IOC) is required to ensure the validity of the research tools. Mr. Xu Xiongbo will be in direct contact with you to coordinate all relevant details.

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Professor Emeritus Dr. Chanita Rukspollmuang

Dean of Graduate School of Education



SU.0210.04/ 22

Graduate School of Education
Siam University
38 Phet Kasem Rd, Bang Wa
Phasi Charoen, Bangkok 10160

June 2025

Dear Professor Fang Xujun.,

You hold a Doctor of Education from Nanning Vocational and Technical University. You currently serve as a Professor at Nanning Vocational and Technical University.

Subject: Invitation to Serve as an Expert for Evaluating the Index of Item-Objective Congruence (IOC) of Research Instruments

Since Mr. Xu Xiongbo, student ID 6419000026 a doctoral student in Degree of Doctor of Philosophy in Educational Administration Innovation, works on a dissertation "Developing an Effective Model of Adult Learners' Intention to Continue Learning Through VOCATIONAL COLLEGES in Nanning, China" with Assoc. Prof. Dr. Jomphong Mongkhonvinit (the advisor) and Assoc. Prof. Dr. Boonmee Nenyod (the co-advisor), the Graduate School of Education would like to invite you to be an expert to provide your opinion in the Graduate School of Education would like to invite you to be an expert to examine the research tools.

The questionnaire addressing the current circumstances is a crucial instrument in this research. Therefore, an evaluation using the Index of Item-Objective Congruence (IOC) is required to ensure the validity of the research tools. Mr. Xu Xiongbo will be in direct contact with you to coordinate all relevant details.

We sincerely appreciate your support and valuable contribution to this research.

Best Regards

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Professor Emeritus Dr. Chanita Rukspollmuang

Dean of Graduate School of Education

APPENDIX E: English Questionnaire

A Survey on the Participation of Adult Learners in Continuing Education at public vocational colleges in Nanning (Questionnaire)

Xu Xiongbo

徐雄波

PhD in Educational Administration Innovation

教育管理创新博士

Dear Participant:

Hello! Thank you for taking the time to participate in this survey on "The Participation of Adult Learners in Continuing Education at Vocational Colleges in Nanning." This questionnaire aims to gain a deeper understanding of the current situation, needs, and challenges faced by adult learners in Nanning who are involved in continuing education at public vocational colleges. We hope to provide data support and reference for relevant departments to formulate more scientific and rational continuing education policies. Please answer each question honestly and carefully based on your actual situation. We promise that your personal information and responses will be strictly confidential and used only for the analysis of this study. Your participation is crucial to us, and we appreciate your support and cooperation! We wish you a pleasant experience in completing the survey!

Xu Xiongbo
Student Siam University

I. Demographic Information

Note: The first part of the questionnaire pertains to your personal information. All questions are single-choice. Please mark "√" before the answer that matches your option.

Question	Option
1. Gender	A. Male
	B. Female
	A.18-25 years old
2. Age	B. 26-35 years old
	C.36-45 years old

Question	Option
	D. 46-60 years old
	E. Over 60
	A. Single
3. Marital Status	B. Married
	C. Divorced
	D. Widowed
	A. High school or below
4. Education	B. Associate degree
	C. Bachelor's degree
	D. Master's degree or above
	A. Student, not working
	B. Full-time employment
5. Employment Status	C. Part-time work
	D. Unemployed
	E. Retired
	A. Less than 3500 yuan
6. Monthly Income	B. 3500-4500 yuan
	C. 4501-5500 yuan
	D. More than 5500 yuan
	A. Less than 6 months
7. Duration of participation in continuing education at public vocational colleges	B. 6 months to 1 year
	C. 1 to 2 years
	D. More than 2 years
	A. To improve academic qualifications
	B. To enhance skills and obtain certificates
8. The purpose of participating in continuing education at public vocational colleges is to.	C. Employer requirement
	D. Personal interest
	E. Career change or job shift
	F. Other

II. Learning Motivation Assessment

Please rate the following descriptions according to your actual situation by marking a “√.” Use the scale where “1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree”.

Variable	Number	Item	Description	1	2	3	4	5
Learning Motivation	14	LM1	I am passionate about learning new knowledge and often actively seek out learning opportunities.					
	15	LM2	I believe that by continuously learning, I can improve my skills and abilities.					
	16	LM3	To gain a group's respect, I will join continuing education activities.					
	17	LM4	I have little interest in participating in continuing education. (R)					

III. Self-Efficacy Assessment

Please rate the following statements based on your actual situation by marking a “√” according to the scale provided. The rating criteria are as follows: “Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1”.

Variable	Number	Item	Description	1	2	3	4	5
Self-efficacy	9	SE1	I believe I can achieve good results in continuing education at public vocational colleges.					
	10	SE2	Even facing setbacks in continuing education, I believe I can overcome challenges.					
	11	SE3	I believe that I am not capable of achieving success in continuing education at public vocational colleges. (R)					
	12	SE4	In continuing education, I can					

Variable	Number	Item	Description	1	2	3	4	5
	13	SE5	effectively manage my study time to complete all learning tasks. Even if others do not ask me, I will still insist on completing my continuing education.					

IV. Social Support Assessment

Please rate the following descriptions based on your actual situation by marking a “√”. The scale is as follows: “1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree”.

Variable	Number	Item	Description	1	2	3	4	5
	18	SS1	During my participation in continuing education, my family and friends provide me with material support.					
	19	SS2	During my participation in continuing education, my family and friends provide me with emotional support.					
Social Support	20	SS3	I can effectively utilize the help provided by others to overcome various learning challenges.					
	21	SS4	When I encounter difficulties in continuing education, I can definitely get help from external sources.					
	22	SS5	In continuing education, I rarely receive recognition and assistance from others.					

V. Subjective Norms Assessment

Please rate the following descriptions according to your actual situation by marking a “√”. The scale is as follows: “1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree”.

Variable	Number	Item	Description	1	2	3	4	5
Subjective	23	SN1	My families expect me to					

Variable	Number	Item	Description	1	2	3	4	5
Norms			participate in continuing education at public vocational colleges actively.					
	24	SN2	I have friends and relatives who encourage me to pursue continuing education at public vocational colleges.					
	25	SN3	My family and friends are waiting to see my success in continuing education at public vocational colleges.					
	26	SN4	I do not care about my friends and relatives' opinions on my participation in continuing education. (R)					
	27	SN5	My family and friends hope that I will participate in continuing education at public vocational colleges.					

VI. Learning Cost Assessment

Please rate the following descriptions based on your actual situation by marking a “√”. Use the scale where “1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree”.

Variable	Number	Item	Description	1	2	3	4	5
Learning Costs	28	LC1	I have incurred a relatively high economic cost to participate in continuing education at public vocational colleges.					
	29	LC2	I have spent a considerable amount of time participating in continuing education at public vocational colleges.					
	30	LC3	To participate in continuing education at a vocational college, I gave up the opportunity to do other					

Variable	Number	Item	Description	1	2	3	4	5
			things.					
	31	LC4	During the process of participating in continuing education at public vocational colleges, I invested not only money but also emotions and efforts.					
	32	LC5	During the process of continuing education, I have hardly paid any significant price worth mentioning. (R)					

VII. Continuous Learning Intention Assessment

Please rate the following descriptions according to your actual situation by marking a “√”. The scale is as follows: “1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree”.

Variable	Number	Item	Description	1	2	3	4	5
	33	CLI1	I plan to continue participating in continuing education at public vocational colleges.					
	34	CLI2	Even after achieving current goals, I will continue to participate in continuing education in the future.					
Continuous Learning Intention	35	CLI3	I will continue attending vocational college for continuing education, rather than pursuing other methods.					
	36	CLI4	Upon completing my current studies, I will not rejoin the vocational college for continuing education. (R)					
	37	CLI5	I believe that continuous participation in continuing education at public vocational colleges is beneficial to me.					

APPENDIX F: Chinese Questionnaire

《南宁市成人学习者参与职业院校继续教育的情况调查（问卷）》

尊敬的参与者：

您好！感谢您抽出宝贵时间参与本次《南宁市成人学习者参与职业院校继续教育的情况调查》。本问卷旨在深入了解南宁市成人学习者参与职业院校继续教育的现状、需求及面临的挑战，以期为相关部门制定更加科学合理的继续教育政策提供数据支持和参考依据。请您根据自己的实际情况，诚实、认真地填写每一个问题。我们承诺，您的个人信息和回答将严格保密，仅用于本次研究分析。您的参与对我们至关重要，感谢您的支持与合作！祝您填写愉快！

徐雄波

Student Siam University

一、个人基本情况

备注：问卷的第一部分是关于您的个人信息，所有题项为单选题，请您在选项匹配的答案前打“√”

问题	选项
1. 性别	A.男 B.女
2. 年龄	A.18-25岁 B. 26-35岁 C.36-45岁 D. 46-60岁 E.60岁以上
3. 婚姻状况	A. 未婚 B. 已婚 C. 离异 D. 丧偶
4. 教育程度	A. 高中及以下学历 B. 大学专科 C. 大学本科 D. 硕士研究生及以上
5. 就业状况	A. 学生、未参加工作

问题	选项
	B. 全日制工作 C. 兼职工作 D. 待业 E. 离退休
6. 月收入	A. 不足3500元 B. 3500-4500元 C. 4501-5500元 D. 超过5500元
7. 参与职业院校继续教育的时长	A. 小于6个月 B. 6个月-1年 C. 1-2年 D. 大于2年
8. 参与职业院校继续教育的目的	A. 提升学历 B. 提升技能、获取证书 C. 单位要求 D. 个人兴趣 E. 转行或换岗 F. 其它

二、学习动机评估

请根据您的实际情况，为以下描述以画“√”的方式进行评分。其中“1=完全不同意，2=比较不同意，3=中立，4=比较同意，5=完全同意”。

维度	编号	题号	描述	1	2	3	4	5
学习动机	14	LM1	我对学习新知识充满热情，并且经常主动寻找继续学习机会。					
	15	LM2	我认为通过参与继续学习，可以提高我的技能和能力。					
	16	LM3	为了在集体中获得好名声，我愿意参与继续教育活动。					
	17	LM4	我对参与继续教育没有太大的兴趣。(R)					

三、自我效能感评估

请根据您的实际情况，为以下描述以画“√”的方式进行评分。其中“1=完全不同意，2=比较不同意，3=中立，4=比较同意，5=完全同意”。

维度	编号	题号	描述	1	2	3	4	5
自我效能感	9	SE1	我相信自己有能力在职业院校继续教育中取得好成果。					

维度	编号	题号	描述	1	2	3	4	5
	10	SE2	即使在继续教育中面临挫折,我也相信我有能力克服困难。					
	11	SE3	我认为我没有能力在职业院校继续教育中获得成功。(R)					
	12	SE4	在继续教育中,我能够有效地管理我的学习时间,以完成所有的学习任务。					
	13	SE5	即使他人没有要求我,我也会坚持完成继续教育					

三、社会支持评估

请根据您的实际情况,为以下描述以画“√”的方式进行评分。其中“1=完全不同意,2=比较不同意,3=中立,4=比较同意,5=完全同意”。

维度	编号	题号	描述	1	2	3	4	5
社会支持	18	SS1	在参与继续教育过程中,我的亲朋好友给予我物质上的支持。					
	19	SS2	在参与继续教育过程中,我的亲朋好友给予我情感上的支持。					
	20	SS3	我能有效利用外界给我的帮助来克服学习中的各类问题。					
	21	SS4	当我继续教育遇到困难时,我肯定能从外部来源获得帮助。					
	22	SS5	在继续教育中,我很少接受他人的认可和帮助。(R)					

四、主观规范评估

请根据您的实际情况,为以下描述以画“√”的方式进行评分。其中“1=完全不同意,2=比较不同意,3=中立,4=比较同意,5=完全同意”。

维度	编号	题号	描述	1	2	3	4	5
主观规范	23	SN1	当我继续教育遇到困难时,我肯定能从外部来源获得帮助。					
	24	SN2	我身边的亲朋好友,都鼓励我认真完成职业院校的继续教育。					
	25	SN3	我的亲人与朋友,都期望我在职业院校继续教育中取得成功。					
	26	SN4	我不在意亲朋好友对我参与继续教育的					

维度	编号	题号	描述	1	2	3	4	5
	27	SN5	看法。(R) 我的亲朋好友希望我参与职业院校继续教育。					

五、学习成本评估

请根据您的实际情况，为以下描述以画“√”的方式进行评分。其中“1=完全不同意，2=比较不同意，3=中立，4=比较同意，5=完全同意”。

维度	编号	题号	描述	1	2	3	4	5
学习成本	28	LC1	我花费了较高的经济成本参与职业院校继续教育。					
	29	LC2	我花费了较多的时间成本参与职业院校继续教育。					
	30	LC3	为参与职业院校继续教育，我放弃了做其他事情的机会。					
	31	LC4	在参与职业学院继续教育的过程中，我投入的不仅仅是金钱，还有情感和努力。					
	32	LC5	我在继续教育过程中，几乎没有付出值得在意的代价。(R)					

六、持续学习意愿评估

请根据您的实际情况，为以下描述以画“√”的方式进行评分。其中“1=完全不同意，2=比较不同意，3=中立，4=比较同意，5=完全同意”。

维度	编号	题号	描述	1	2	3	4	5
持续学习意愿	33	CLI1	我打算继续参与职业院校继续教育。					
	34	CLI2	即使完成当下的目标，我未来也会坚持参与继续教育。					
	35	CLI3	我将继续参与职业院校继续教育，而不是用别的学习手段代替它。					
	36	CLI4	完成现阶段学习后，我不会再次参与职业院校继续教育。(R)					
	37	CLI5	我认为持续参与职业院校继续教育对我很有帮助。					

APPENDIX G: Qualitative Analysis Interview Outline

A Survey on the Participation of Adult Learners in Continuing Education at Vocational Colleges in Nanning (Interview)

Dear Participant,

Thank you for your participation in this study, which examines the factors influencing adult learners' intention to continue their education. In an evolving societal landscape, lifelong learning has become a critical mechanism for enhancing individual competitiveness and adaptability. This research investigates explicitly the experiences of adult learners in Nanning public vocational colleges to identify key determinants of their continued educational engagement, to inform institutional service optimization.

The interview will focus on your personal experiences, challenges, and perspectives within vocational continuing education. Your contributions are highly valued, and all shared content will be treated with strict confidentiality and utilized solely for academic purposes.

We sincerely appreciate your support and collaboration

Xu Xiongbo
Student Siam University

Question	Probe
1 What are the subjective and objective reasons for your decision to participate in continuing education? 您选择参与继续教育的主观原因与客观原因分别是什么?	Can you tell me more specifically?
2 Are there any factors that motivate you to persist in continuing education? 是否存在一些因素，激励您坚持参与继续教育?	Can you tell me more specifically?
3 Are there any factors that hinder your continued participation in continuing education? 是否存在一些因素，阻碍您继续参与继续教育?	Can you tell me more specifically?
4 After completing your current learning goals, would you consider participating in continuing education in the future? 在完成现阶段学习目标后，未来您是否还会选择参与继续教育?	Can you tell me more specifically?

APPENDIX H: Results of Qualitative Analysis

Results of the Survey on Factors Influencing Adult Learners' Intention to Continue Learning (Qualitative Analysis)

Interviewee I is Interview Transcript

Interview Question 1: What are the subjective and objective reasons for your participation in continuing education?

I: I am 26 years old, and my current job is part-time with a monthly income of less than 3500 yuan. My primary motivation for continuing education is to enhance my skills and strive for a full-time position. Subjectively, I have a keen interest in learning new knowledge and believe in my ability to excel in my studies. I view this as an excellent opportunity for self-improvement and a means to enhance my competitiveness. With only a high school diploma, I have encountered numerous limitations in job searching and career advancement, so I consider continuing education an excellent pathway for enhancement, making me more competitive in the workplace.

Objectively, the lack of relevant skill certifications has led to my current part-time status and relatively low income. Therefore, I hope to improve my skills and obtain certifications through continuing education to become a full-time employee and achieve a more stable income. Additionally, many job advertisements require relevant certifications and skills, so even if I were to resign, I could use these certifications to seek new employment opportunities, making continuing education a necessity.

Interview Question 2: Are there any factors that motivate you to persist in continuing education?

I: First and foremost, I have a clear career plan. I aim to enhance my skills and obtain certifications to secure a full-time position, which will not only stabilize my income but also boost my workplace competitiveness. Secondly, I have seen friends of mine improve their academic qualifications or obtain professional certifications through continuing education, which has led to better job opportunities. Their success has been a significant source of motivation and serves as an inspiration for me. Lastly, I set clear learning goals for myself. For instance, I plan what knowledge I need to acquire each month and what content I need to study the following month. Every time I master a new skill or make progress in my studies, the sense of achievement drives me to continue and helps me overcome challenges in the learning process.

Interview Question 3: Are there any factors that hinder your continued participation in continuing education?

I: Yes, there are indeed some difficulties. The biggest issue is financial pressure. The tuition for continuing education is relatively high, costing thousands of yuan per semester, which is a significant burden for me given my limited income. I also have to cover my living expenses, and my family cannot provide much financial support in this regard, making the economic burden of learning quite challenging. Additionally, it is challenging to find time for learning, as I also work part-time to make ends meet. When work is busy, it is not easy to focus on my studies. Moreover, the distance between my workplace and the school is considerable, requiring me to travel back and forth, which is exhausting. Lastly, my foundation is weaker compared to that of other students, and some course content is quite challenging, requiring me to spend more time understanding it. This adds to my stress and sometimes makes me doubt whether I can keep up with the class. I have considered giving up, but I ultimately persisted.

Interview Question 4: After completing your current learning goals, will you choose to participate in continuing education in the future?

I: I believe I will. Although my current participation is primarily aimed at enhancing my skills and obtaining certifications to secure a full-time position, I recognize that learning is a long-term process. After completing my current learning goals, if conditions permit, I might opt for further studies, such as enrolling in advanced courses or learning related technical knowledge. I hope that through continuous learning, I can continually enhance my capabilities and better adapt to changes in the workplace. I have established a long-term career plan, aiming to gradually enhance my professional level and job-specific skills over the next few years. I am convinced that through continuing education, I can lay a solid foundation for my future career development.

Interviewee J's Interview Transcript

Interview Question 1: What are the subjective and objective reasons for your participation in continuing education?

J: I am 42 years old. Before my divorce, I was a housewife, and I have been unemployed since then, primarily relying on rental income to sustain my living. My primary motivation for continuing education is to re-enter the workforce. On one hand, having been away from the workplace for so long, I am concerned that my skills have become completely outdated. I am unsure of what kind of talents the market currently demands, and I am afraid that I will face numerous obstacles during job interviews. On the other hand, although rental income can barely cover my living expenses, it is far from sufficient for future retirement or to cope with emergencies. I need a stable source of income and also want to regain a sense of self-worth. I hold a graduate degree and

possess decent learning abilities, so I aim to enhance my professional skills through continuing education, obtain accounting certifications, and re-enter the workforce. I believe this is an excellent opportunity for me to rediscover my life's direction. Moreover, although my current financial situation is not dire, it is not affluent either. I hope to increase my income and improve my living conditions by enhancing my skills and expertise. I have seen many job advertisements requiring relevant certifications and skills, which makes me feel that continuing education is a necessary step to re-enter the workforce. Additionally, I currently have more time to devote to learning, which is a good opportunity.

Interview Question 2: Are there any factors that motivate you to persist in continuing education?

J: First and foremost, I have a clear vision for my career planning. I aim to enhance my skills and obtain certifications to re-enter the workforce and find a stable and challenging job. This career goal is the most significant driving force behind my persistence in learning. Secondly, I have seen many people of similar age to mine successfully re-enter the workforce through continuing education. Their stories have given me great confidence and inspiration. Sometimes when I see their shares in classrooms or online forums, or hear examples from teachers, I am deeply moved. It turns out that someone of my age can start learning and looking for a job again. Additionally, my child supports my decision to go back to school. To set a good example for her, I have decided to persevere through any difficulties I encounter.

Interview Question 3: Are there any factors that hinder your continued participation in continuing education?

J: Yes, there are indeed some difficulties. The biggest issue is psychological pressure. Having been away from the workplace for a while, it is not easy to return to a learning state. Sometimes, I feel anxious and uneasy, worrying whether I can keep up with the learning pace and adapt to the new living environment. This pressure sometimes makes me want to give up.

Additionally, although I am currently unemployed, I still have many responsibilities in life that need to be addressed, such as caring for my family and managing daily affairs. Balancing life and learning is not easy for me. Moreover, the financial burden of learning is not small. Although I have a solid financial foundation, the tuition and related costs for continuing education still put some pressure on me.

Furthermore, I feel a lack of a sense of belonging during the learning process. Most of my friends are busy with their own work, and few people are like me, relearning new skills. Some friends do not understand why I would go through the trouble of returning to school, thinking I should find a job directly.

Interview Question 4: After completing your current learning goals, will you choose to participate in continuing education in the future?

J: Well, that is a tricky question. My current primary goal is obvious: to return to the workforce as soon as possible by obtaining an accounting certification and resolving my immediate financial problems. The current stage of learning is urgent for me. As for whether I will continue learning after achieving this goal, I might decide based on the specific circumstances at that time. If my job is stable and I feel there is room for improvement or encounter new challenges at work that require additional knowledge, continuing education might still be an option. After all, society is changing rapidly, and not learning might really make it hard to keep up. However, on the other hand, learning also requires an investment of time and energy. At that time, I might need to balance work and life, so I may not have as much energy to engage in systematic learning again. I might watch some sporadic online courses or read related books, but whether I would invest much time in a systematic continuing education program again, I cannot say for sure right now.

Interviewee K's Interview Transcript

Interview Question 1: What are the subjective and objective reasons for your participation in continuing education?

K: Oh my, at my age, to still have the opportunity to continue learning is really quite fortunate. I am the type of person who can never stay idle. Even after retirement, I do not want to spend all my time at home watching TV or playing mahjong. I always feel that learning new things makes life more interesting and helps me maintain a youthful mindset. Although I am already in my sixties, I do not want to become disconnected from society. By acquiring new knowledge, I feel that I can stay current with the times, which gives me a sense of reassurance. Moreover, my pension income is quite substantial, exceeding six thousand, which provides me with a solid financial foundation to support my learning interests. Additionally, there are now many learning courses suitable for the elderly, such as traditional Chinese painting, photography, and aerobics, among others, with professional teachers guiding participants. I returned to school for continuing education after the pandemic, and it has been over two years now. I have taken several courses, and this period of learning has made me feel very fulfilled and happy.

Interview Question 2: Are there any factors that motivate you to persist in continuing education?

K: Of course, there are. First and foremost, the excitement of learning new knowledge is the most significant driving force for me to persist. Every time I complete a traditional Chinese painting through learning or take a beautiful photo, I feel thrilled

and satisfied. During the learning process, I have made many friends who share similar interests. We discuss learning content together, encourage each other, and even organize enjoyable activities outside of class, which makes me feel very warm and happy. Moreover, the younger generation in my family also supports my participation in such learning activities and even encourages me to expand my interests and hobbies, which is very touching.

Interview Question 3: Are there any factors that hinder your continued participation in continuing education?

K: The biggest issue is the difficulty of learning. As I grow older, my memory and learning abilities have declined, and sometimes I find learning quite challenging. For example, when learning how to use a camera, I need to spend more time understanding and memorizing those complex parameters, which are still quite complicated for someone my age.

Additionally, my learning progress is sometimes affected by my health condition. Although I am generally healthy, occasional minor ailments, such as eye fatigue or finger joint pain, can affect my learning state. Also, I sometimes feel that time is not on my side. Although I am retired, I am still responsible for some household chores, taking care of my grandchildren, and occasionally traveling with old friends, which leaves me with limited time for learning.

Interview Question 4: After completing your current learning goals, will you choose to participate in continuing education in the future?

K: Absolutely, I will definitely continue learning! At my age, learning has become an integral part of my life. After completing my current learning goals, I plan to delve deeper into my areas of interest. For instance, I am currently learning photography, and next, I want to learn post-production to make my photos more professional systematically. I might even try creative photography to produce works that tell stories and have soul. In short, I am very much looking forward to future learning. I hope that through continuous learning, my retired life will be more colorful, and I can meet more like-minded friends to share the joy of learning. For me, learning has become not just a pursuit but a way of life.

Interviewee L's Interview Transcript

Interview Question 1: What are the subjective and objective reasons for your participation in continuing education?

L: I am 21 years old and currently still in college, not yet employed. My primary motivation for continuing education is to enhance my academic qualifications and boost my competitiveness. On the one hand, I believe I have considerable room for

improvement. I hope to broaden my knowledge base and enhance my competitiveness through further studies. I believe that academic qualifications can lay a better foundation for my future career development to some extent, so I want to enhance myself through continuing education. Moreover, learning is not just about finding a job for me; it is also a means of self-actualization. I hope to gain a deeper understanding of the world and appreciate my own value by acquiring new knowledge and insights. On the other hand, I have not yet graduated and have relatively ample time and energy to devote to learning. Additionally, I have noticed that society's requirements for academic qualifications are increasingly high, with many good job opportunities requiring a bachelor's or even a master's degree. Therefore, continuing education is both an opportunity for self-improvement and a necessary step to prepare for the future.

Interview Question 2: Are there any factors that motivate you to persist in continuing education?

L: First and foremost, my family has always been very supportive. They support me not only financially but also emotionally. This family support makes me feel very warm and gives me more motivation to learn. Whenever I encounter difficulties or feel lost, my parents and family members offer me much advice and comfort, helping me to bounce back. Secondly, I have seen many seniors who have enhanced their academic qualifications through continuing education and have found better jobs. Their success stories have been a great source of inspiration and encouragement for me. Their experiences have led me to believe that with hard work, I can achieve my goals. Lastly, I hope to enter my ideal industry through continuing education and enhancing my academic qualifications. Every step I take towards this goal gives me a sense of achievement that drives me to continue striving.

Interview Question 3: Are there any factors that hinder your continued participation in continuing education?

L: Indeed, there are some difficulties. The biggest issue is time management. Although I am still in school, my course schedule is quite tight, and I also participate in some club activities, making time arrangement somewhat challenging. Sometimes, I have to choose between studying and club activities, which can be quite a dilemma. I hope to strike a balance between learning and extracurricular activities, but it can be challenging at times. Additionally, I sometimes feel a lot of study pressure, especially when preparing for exams or writing papers. The tension can make me feel anxious. I worry that I will not be able to complete my learning tasks on time or that my exam results will not be satisfactory. This pressure can sometimes leave me feeling tired and even make me want to give up. Moreover, I sometimes feel lost, unsure if my learning direction is correct. This uncertainty can also make me hesitate. I worry that after

spending so much time and energy, I will not achieve the expected results.

Interview Question 4: After completing your current learning goals, will you choose to participate in continuing education in the future?

L: I am currently still in the associate degree stage and have indeed considered a longer-term learning plan. My initial thought is that after completing my current studies, I will consider pursuing further education based on specific circumstances, such as the possibility of pursuing a bachelor's or master's degree. On the one hand, enhancing academic qualifications may help individuals enter specific industries or secure certain positions in the future. On the other hand, continuous learning may also lead to improvements in professional skills. However, I also recognize that this is not a decision to be made. Various factors, including work situation, family circumstances, and the availability of suitable learning opportunities and resources, will influence future choices. Whether learning will truly bring the expected improvement and whether I will still have the willingness and energy to continue learning are all unknowns.

Interviewee M's Interview Transcript

Interview Question 1: What are the subjective and objective reasons for your participation in continuing education?

M: I participate in continuing education for several reasons. On one hand, my workplace requires it; I need to enhance my professional skills, and this is a rare opportunity for me. Subjectively, I believe I have a good learning capacity and truly enjoy the process. I see it as an excellent chance for self-improvement. Given how rapidly our industry is evolving, failing to engage in continuous learning could easily lead to being left behind. I am eager to acquire new knowledge and skills to better adapt to changes in my work and lay a solid foundation for my career development. On the other hand, my workplace not only provides the learning opportunity but also subsidizes a portion of the costs, making me feel that continuing education is beneficial for both my career and keeping pace with my work. Nowadays, job advertisements often list relevant certificates and skills as mandatory requirements, making continuing education evidently necessary. Moreover, with the constant emergence of new knowledge and technologies, I rely on continuing education to update my knowledge system and enhance my competitiveness.

Interview Question 2: Are there any factors that motivate you to persist in continuing education?

M: Absolutely. The support from my workplace is crucial. They not only support my participation in continuing education during my spare time but also encourage me to obtain relevant certificates. My leaders and colleagues are aware of my pursuit of

further studies and have expressed their support, making me feel that I am not alone in this endeavor. Moreover, I can see the outcomes of my learning and feel the improvement in my work skills. This sense of achievement and satisfaction drives me to continue striving. I have set a plan for myself: after completing the courses, I will pursue certification, thereby enhancing my competitiveness in the workplace. Clear learning objectives give me a sense of direction in my studies. Additionally, continuous learning not only enhances professional skills but also broadens horizons and allows me to connect with like-minded individuals. These factors collectively provide me with the motivation to persist.

Interview Question 3: Are there any factors that hinder your continued participation in continuing education?

M: Well, there are indeed some challenges. The biggest issue is time management. Since I work full-time, it is not easy to find time for learning. My daily work is already quite busy, and I need to set aside time for studying after work, as well as attend classes on weekends, which can be exhausting. Sometimes, I have to postpone my study plans due to urgent work tasks, and then I have to catch up with the teachers afterward, which makes me feel quite anxious. Additionally, although my workplace subsidizes part of the cost, the tuition for continuing education remains relatively high for me, and I must bear a portion of it myself, which puts a financial strain on me. The dual pressures of time and money make the learning process somewhat overwhelming.

Furthermore, some course content is quite challenging, requiring me to spend more time understanding it, which adds to my stress. Sometimes, I feel that I am not learning at a fast enough pace to keep up with the course, and this sense of frustration can affect my enthusiasm for learning. Moreover, I do not have many people around me who are engaged in the same activities, which lacks a learning atmosphere and peer support, making me feel somewhat isolated. Sometimes, these difficulties lead me to consider giving up, but ultimately, it is my own persistence and encouragement from my family that help me continue.

Interview Question 4: After completing your current learning goals, will you choose to participate in continuing education in the future?

M: I believe I will. Although workplace requirements primarily drive my current participation, I recognize that learning is a lifelong process. After completing my current learning goals, I might opt for further studies, such as enrolling in advanced courses or learning related management knowledge. I hope that through continuous learning, I can continually enhance my capabilities and better adapt to changes in the workplace. Moreover, I have a habit of regularly setting learning goals for myself, which helps maintain my motivation to learn.

I have established a long-term career plan, aiming to gradually enhance my professional level and management skills over the next few years. I am convinced that through continuous learning, I will not only be able to fulfill my current job responsibilities better but also lay a solid foundation for my future career development. Additionally, I am aware that with the rapid development of the industry and the constant emergence of new technologies and concepts, I need to engage in continuous learning to maintain my competitiveness. Overall, I am looking forward to future learning and hope to continually improve myself through continuous education, achieving both personal and professional growth.



APPENDIX I: Evaluation of the Research Model

DEVELOPMENT OF A MODEL FOR THE CONTINUOUS LEARNING INTENTION OF ADULT LEARNERS IN VOCATIONAL COLLEGES IN NANNING, CHINA

Xu Xiongbo

徐雄波

PhD in Educational Administration Innovation

教育管理创新博士

Dear Review Expert:

Thank you for taking the time to participate in the expert evaluation of the "Model of Adult Learners' Intention to Continue Learning." Based on empirical data from continuing education at public vocational colleges in Nanning, this study has developed a structural model designed to enhance adult learners' intention to continue learning. To ensure the scientific nature, feasibility, and practical utility of the model, we invite you to evaluate its dimensions and path relationships from a professional perspective and offer valuable suggestions for improvement. Your feedback will be directly used to optimize the model and guide subsequent policy-making and practical implementation. This questionnaire is conducted anonymously, and all information will be used solely for academic research purposes. Please feel free to answer.

Xu Xiongbo
Student Siam University

Dimension	Item	1	2	3	4
Propriety 适当性	The model is highly relevant to the concept of adult learners' intention to continue learning. 模型与成人学习者持续学习意愿概念高度相关				
	The model is consistent with existing theoretical frameworks related to adult learning. 该模型与成人学习相关的现有理论框架相符。				
	The definitions of key constructs in the model are clear and explicit. 模型中关键构念的定义清晰明确。				
	The model takes into account the specific needs of adult learners entirely.				

Dimension	Item	1	2	3	4
	该模型充分考虑了成人学习者的特殊性。 The model encompasses the primary factors that influence adult learners' intention to continue learning. 模型涵盖了影响成人学习者持续学习意愿的主要因素				
Feasibility 可行性	The data required by the model are obtainable. 模型所需的数据是可获取的。 The data collection methods suggested by the model are practically feasible. 模型所建议的数据收集方法是切实可行的。 The data analysis methods suggested by the model are suitable for the types of data collected and the research purpose. 模型所建议的数据分析方法适用于所收集的数据类型和研究目的。 The model has moderate or low implementation difficulty in practical applications. 该模型在实际应用中实施的难度适中或较低。 The resources required to apply the model are available. 应用该模型所需的资源是可获得的。				
Utility 效用性	The model can effectively explain the influencing factors and their mechanisms of action on adult learners' intention to continue learning. 该模型能够有效解释成人学习者持续学习意愿的影响因素及其作用机制。 The model has a reference value for formulating policies to promote adult learners' intention to continue learning. 该模型对制定促进成人学习者持续学习意愿的政策具有参考价值 The model can offer valuable insights for enhancing adult learning practices. 该模型能为改进成人学习实践提供有价值的建议。 The model is significant for guiding future research related to adult learners' intention to continue				

Dimension	Item	1	2	3	4
	learning. 该模型对指导未来成人学习者持续学习意愿相关的研究具有意义。 The model has a specific capacity for cross-cultural or cross-situational adaptation. 该模型具有一定的跨文化或跨情境适应能力。				



APPENDIX J: Expert CVI Review Results

To ensure the professionalism and objectivity of the evaluation process, the study invited eight experts in the field of continuing education to assess the research model. These experts possess extensive experience and profound professional backgrounds in continuing education, enabling them to provide professional evaluations and feedback on the research model.

Table Expert Content Validity Index Evaluation Results

Criteria Category	Propriety					Feasibility				Utility					
Expert 1	3	4	3	3	4	3	3	3	4	3	4	4	4	3	4
Expert 2	3	4	4	4	4	4	3	4	3	4	4	3	3	3	2
Expert 3	4	4	3	4	3	3	3	3	4	3	4	3	4	4	3
Expert4	4	3	4	3	3	3	4	4	2	3	3	4	4	3	4
Expert 5	4	3	3	4	4	4	3	4	3	4	3	4	3	4	4
Expert 6	3	4	4	3	3	3	4	3	3	4	4	3	4	3	4
Expert 7	3	3	4	4	4	3	3	3	4	3	4	2	4	3	4
Expert 8	4	3	4	3	4	4	3	4	4	4	3	4	4	3	4
n≥3	8	8	8	8	8	8	8	8	7	8	8	7	8	8	7
CVI	1	1	1	1	1	1	1	1	0.88	1	1	0.88	1	1	0.88



SU 0210.14 / 151.3

Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Associate Professor Chen Hongqiu,
Guangxi University of Science and Technology

Subject: Invitation to be an expert to evaluate the results.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanning, China"* with Assoc. Prof. Dr. Jomphon Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to evaluate the results. Mr. Xu Xiongbo will contact and coordinate all details himself.

We really appreciate your help.

Yours sincerely,

(Professor Emeritus Dr. Chanita Rukspollmuang)
Dean of Graduate School of Education

陈红球



SU 0210.14 / 151.4

Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Professor Huang Qiuling,
Guangxi International Business Vocational and Technical College

Subject: Invitation to be an expert to evaluate the results.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanning, China"* with Assoc. Prof. Dr. Jomphong Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to evaluate the results. Mr. Xu Xiongbo will contact and coordinate all details himself.

We really appreciate your help.

Yours sincerely,

(Professor Emeritus Dr. Chanita Rukspollmuang)
Dean of Graduate School of Education

黃秋玲



SU 0210.14 / 1515

Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Associate Professor Zeng Weijian,
Guangxi Institute of Industry and Technology

Subject: Invitation to be an expert to evaluate the results.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanning, China"* with Assoc. Prof. Dr. Jomphong Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to evaluate the results. Mr. Xu Xiongbo will contact and coordinate all details himself.

We really appreciate your help.

Yours sincerely,

(Professor Emeritus Dr. Chanita Rukspollmuang)
Dean of Graduate School of Education

曾伟坚



SU 0210.14 / 151.6

Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Associate Professor Gong Jian,
Guangxi Construction Vocational and Technical College

Subject: Invitation to be an expert to evaluate the results.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanning, China"* with Assoc. Prof. Dr. Jomphong Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to evaluate the results. Mr. Xu Xiongbo will contact and coordinate all details himself.

We really appreciate your help.

Yours sincerely,

(Professor Emeritus Dr. Chanita Rukspollmuang)
Dean of Graduate School of Education

龚剑



SU 0210.14 / 151.7

Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Associate Professor Wei Wenshan,
Guangxi Economic and Trade Vocational and Technical College

Subject: Invitation to be an expert to evaluate the results.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanning, China"* with Assoc. Prof. Dr. Jomphong Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to evaluate the results. Mr. Xu Xiongbo will contact and coordinate all details himself.

We really appreciate your help.

Yours sincerely,

(Professor Emeritus Dr. Chanita Rukspolmuang)

Dean of Graduate School of Education

韦雯珊



SU 0210.14/15.1.8

Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Associate Professor Lu Yongwei,
Guangxi Vocational and Technical College

Subject: Invitation to be an expert to evaluate the results.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanning, China"* with Assoc. Prof. Dr. Jomphon Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to evaluate the results. Mr. Xu Xiongbo will contact and coordinate all details himself.

We really appreciate your help.

Yours sincerely,

(Professor Emeritus Dr. Chanita Rukspollmuang)
Dean of Graduate School of Education

卢勇威



SU 0210.14 /151.9

Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Professor Wang Jieyu,
Guangxi Vocational Normal University

Subject: Invitation to be an expert to evaluate the results.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanjing, China"* with Assoc. Prof. Dr. Jomphong Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to evaluate the results. Mr. Xu Xiongbo will contact and coordinate all details himself.

We really appreciate your help.

Yours sincerely,

(Professor Emeritus Dr. Chanita Rukspolmuang)
Dean of Graduate School of Education



SU 0210.14/151.10

Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Associate Professor Li Jianan,
Guangxi Construction Vocational and Technical College

Subject: Invitation to be an expert to evaluate the results.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanning, China"* with Assoc. Prof. Dr. Jomphong Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to evaluate the results. Mr. Xu Xiongbo will contact and coordinate all details himself.

We really appreciate your help.

Yours sincerely,

(Professor Emeritus Dr. Chanita Rukspollmuang)
Dean of Graduate School of Education

李佳男

APPENDIX K: Translation Expert

SU 0210.14 / 151.1



Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Associate Professor Jiang Daili,
College English Teacher

Subject: Invitation to be an expert to verify the translation of the research questionnaires.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanning, China"* with Assoc. Prof. Dr. Jomphong Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to verify the translation of the research questionnaires.

The research questionnaires are an essential tool for researchers to find answers. Mr. Xu Xiongbo conducted this research in English, the instrument was designed in English. However, it must be applied to Chinese respondents. Your role as an expert in verifying the translation of the research questionnaire from English into Chinese is of utmost importance for the success of this research. Then, Mr. Xu Xiongbo will contact and coordinate all details by himself.

We really appreciate your help.

Yours sincerely,

A handwritten signature in black ink, likely belonging to Professor Emeritus Dr. Chanita Ruksapollmuang.

Professor Emeritus Dr. Chanita Ruksapollmuang

Dean of Graduate School of Education

SU 0210.14 / 151.2



Graduate School of Education
Siam University
38 Phet Kasem Rd., Bang Wa,
Phasi Charoen, Bangkok 10160

4 September 2025

Dear Dr. Pan Keren,
College English Teacher

Subject: Invitation to be an expert to verify the translation of the research questionnaires.

Since Mr. Xu Xiongbo, student ID 6419000026, a doctoral student in the English program at the Graduate School of Education, Siam University Thailand, works on a dissertation: *"Developing an Effective Model of Adult Learners' Intention to Continue Learning through Vocational Colleges in Nanning, China"* with Assoc. Prof. Dr. Jomphong Mongkhonvanit (the advisor) and Dr. Lee Hsing Lu (the co-advisor), the Graduate School of Education would like to invite you to be an expert to verify the translation of the research questionnaires.

The research questionnaires are an essential tool for researchers to find answers. Mr. Xu Xiongbo conducted this research in English, the instrument was designed in English. However, it must be applied to Chinese respondents. Your role as an expert in verifying the translation of the research questionnaire from English into Chinese is of utmost importance for the success of this research. Then, Mr. Xu Xiongbo will contact and coordinate all details by himself.

We really appreciate your help.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'Chanita Rukspollmuang'.

Professor Emeritus Dr. Chanita Rukspollmuang
Dean of Graduate School of Education

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Bachelor's Degree
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Institution: Guangxi Normal University
Country: Guangxi Province China
Year: 2006

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Major: Education Economics and Management
Institution: Guangxi Normal University
Country: Guangxi Province China
Year: 2012