

# The Impact of Learning Motivation on Study Engagement among Students Majoring in Tea Studies at Chinese Vocational Colleges: The Mediating Effect of Professional Satisfaction

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## Abstract

*This research investigates how learning motivation, engagement, and professional satisfaction are interconnected among tea science students at vocational colleges in China. The study involved 580 tea science students from higher vocational colleges in Y City who completed a questionnaire. The collected data was analyzed using a structural equation model. The findings revealed that learning motivation positively influences learning engagement. However, professional satisfaction has a negative impact and partially mediates learning motivation and learning engagement. The findings suggest that while strong learning motivation benefits learning engagement, high professional satisfaction does not necessarily lead to increased engagement. Therefore, students majoring in tea science should maintain their motivation to learn and strive for improvement, while also ensuring they are satisfied with their professional development. By doing so, they can enhance their competitiveness and avoid complacency with their current status.*

**Keywords:** *Tea studies, professional satisfaction, study engagement, learning motivation.*

## 1. Introduction

The tea industry is a significant contributor to the global economy, and as such, there is a growing demand for professionals with tea-related expertise. Higher vocational education can equip students with the knowledge and skills necessary for tea production, processing, sales, and the development of associated products. However, majors related to tea in higher vocational education face challenges such as low student engagement, which can negatively impact the quality of education and student professionalism, ultimately affecting the development of the tea industry.

This research aims to explore the relationship between learning motivation, learning engagement, and professional satisfaction among tea-related vocational college students. The motivation for this research stems from the need to identify the factors that influence tea students' learning engagement and to develop effective strategies to improve learning outcomes in the tea industry and the quality of vocational education. Furthermore, this research can contribute to the existing literature on learning engagement and vocational education, providing insights into the unique challenges and opportunities faced by students in the tea field.

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In summary, tea-related higher vocational education currently faces various professional challenges. There is a need to identify the factors that influence the learning engagement of tea-related vocational college students to improve the quality of education and professionalism in the tea industry.

## 2. Literature Review

### 2.1 Conceptual Definition

Professional satisfaction refers to the level of happiness that students experience with their chosen field of study. It is measured by emotional and cognitive factors, such as how much they enjoy their courses, how well their major aligns with their interests and career goals, and how confident they feel about their ability to succeed in their field of study (Fan & Williams, 2010; Stebleton et al., 2013). Professional satisfaction has been linked to a range of positive outcomes, including academic engagement, academic achievement, and career success (Cho & Kim, 2015; Hsu & Huang, 2015).

Learning engagement refers to a positive, sustained emotional state towards learning during the process of studying (Schaufei & Martine, 2002). It involves active participation in various learning activities, in-depth thinking, energetic response to challenges and setbacks, and positive emotional experiences (Zhang, 2012). Learning engagement includes both behavioral and emotional dimensions, such as attending classes, participating in classroom discussions, completing assignments, and feeling motivated and interested in the materials (Fredricks et al., 2004; Reeve & Tseng, 2011).

Learning motivation refers to the desire or driving force to engage in learning activities, acquire knowledge, and improve personal skills and abilities (Pintrich & Schunk, 2002; Wigfield & Eccles, 2002). Motivation is a key factor in the learning process because it determines the level of engagement and effort that learners put into their studies. Learning motivation is a continuous process that runs throughout the entire learning behavior of students (Mao, 1995). During the learning process, individuals generate positive conscious actions out of a desire for satisfaction (Gardner, 2001). These actions ultimately enable them to persevere and achieve their goals or plans.

### 2.2 Theoretical Basis

The Self-Determination Theory (SDT), as proposed by Deci and Ryan (2000), serves as the foundation for investigating how learning motivation, as a mediating variable, impacts learning investment and professional satisfaction.

SDT proposes that motivation is a fundamental human need that is crucial for human well-being and optimal functioning. According to this theory, there are three types of motivation: intrinsic, extrinsic, and amotivation. Intrinsic motivation is based on an individual's internal interest and enjoyment of an activity, while extrinsic motivation is driven by external factors such as rewards or punishments.

Against the backdrop of examining the effect of learning motivation as a mediator variable on learning investment and professional satisfaction, SDT provides a framework for comprehending the intricate relationship between motivation, investment, and satisfaction. Specifically, the theory proposes that students with a high level of intrinsic learning motivation are more likely to participate in learning activities, have a greater degree of professional satisfaction, and as a result, attain better learning outcomes and happiness. Furthermore, SDT also emphasizes the importance of satisfying basic psychological needs such as autonomy, competence, and relatedness to achieve optimal motivation and happiness during the learning process.

### 2.3 Relationship between Learning Motivation and Learning Investment

According to Fredricks et al. (2004), students with intrinsic motivation are more likely to actively participate in academic tasks and persist in achieving their academic goals. Similarly, Ahmetoglu and Simsek (2014) found that engaged students performed better academically and were more likely to attain their learning objectives. Mäntylä and Vauras (2021) studied Finnish high school students and discovered a significant influence on learning motivation and engagement. They also observed that the perceived classroom atmosphere moderated the relationship between learning motivation and engagement. In online courses, Kim et al. (2015) found that learning motivation can enhance student engagement by facilitating self-management, effort and attention allocation, and adjustments in learning strategies. Wang and Holcombe (2010) argued that academic motivation strongly impacts academic engagement. Grolnick (2007) suggested that self-determined learning motivation positively affects learning engagement, regardless of the learning environment. Some scholars have proposed that college students with stronger motivation invest more energy in their learning. These students' learning behaviors are driven by a continuous pursuit of their abilities (Liang Haiying, 2020), and they experience more positive cognitive and emotional states because of their strong desire for knowledge. They expect to continuously enhance their abilities, affirming themselves and persistently striving (Wang et al., 2019).

This study formulates research hypothesis H1 based on previous literature.

H1: The learning motivation of tea studies students in vocational colleges has a notable influence on their level of engagement in the learning process.

### 2.4 Relationship between learning motivation and professional satisfaction

In their study, Wang Xiaoxia and Jiang Yan (2016) examined the correlation between learning motivation and professional satisfaction. Their findings revealed a positive association between intrinsic and primary satisfaction, while extrinsic motivation negatively correlated with primary satisfaction. Furthermore, they discovered that various factors, including gender, age, and cultural background, influenced the relationship between learning motivation and professional satisfaction. These results suggest that intrinsic motivation is crucial in enhancing professional satisfaction, highlighting educators' importance in creating an environment that supports self-motivation and fosters intrinsic motivation. Similarly, Wang and Eccles (2013) found that autonomous support from parents and teachers positively impacted learning motivation and professional satisfaction.

Cho and Lee (2019) investigated the impact of academic motivation on professional satisfaction. They discovered that intrinsic motivation is positively correlated with academic engagement, and academic engagement is positively correlated with professional satisfaction. Conversely, they found that extrinsic motivation is negatively correlated with academic engagement, and academic engagement is negatively correlated with professional satisfaction. In summary, the research results suggest that intrinsic motivation and academic engagement are critical factors in promoting professional satisfaction.

This study formulates research hypothesis H2 based on previous literature.

H2: The satisfaction of vocational college students specializing in tea studies is significantly influenced by their level of learning motivation.

### 2.5 Relationship between professional satisfaction and investment in learning

The level of professional satisfaction significantly influences the level of engagement in learning among vocational students. Vallerand et al. (2003) conducted a study that revealed a positive relationship between satisfaction with one's chosen significant and active participation in learning activities related to that field. Similarly, Jaramillo-Sierra et

al. (2019) found a positive correlation between nursing students' professional satisfaction and their engagement in learning. Johnson et al. (2017) discovered a significant correlation between professional satisfaction and student involvement in research activities. Additionally, Sun and Chen (2020) observed that professional satisfaction is positively associated with student participation in service-learning activities. Specifically, their study indicated that students who are satisfied with their profession are more likely to engage in service-learning activities, such as community service projects integrated into the curriculum.

This study puts forward research hypothesis H3 based on the existing literature:

H3: The level of professional satisfaction among vocational college students specializing in tea-related majors has a notable influence on their level of investment in learning.

2.6 The relationship between professional satisfaction, engagement in learning, and motivation to learn.

Professional satisfaction, learning motivation, and learning engagement are crucial factors that influence student academic performance and success. One mechanism that mediates the relationship between learning motivation and engagement is professional satisfaction. According to Li et al. (2017), professional satisfaction partially mediated the relationship between achievement motivation (i.e., motivation to achieve success and excellence in academics) and academic engagement. They also found that professional fulfillment fully mediated the relationship between social motivation (i.e., motivation to interact with others and establish social relationships) and academic engagement.

This study introduces research hypothesis H4 based on the existing literature:

H4: The professional satisfaction of vocational college students majoring in tea studies mediates the relationship between learning motivation and learning investment.

### 3. Research Design and Methods

#### 3.1 Research Structure

This study establishes a hypothetical model based on the literature review and proposed research hypotheses. The model uses learning motivation as the independent variable, learning engagement as the dependent variable, and professional satisfaction as the mediating variable.

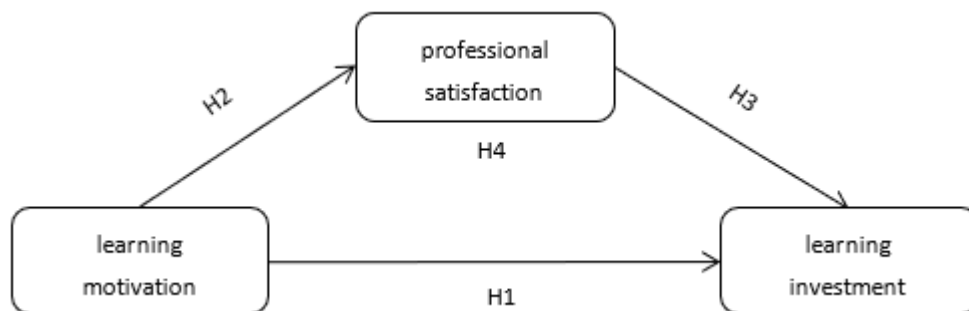


Figure 1. Architecture diagram of the research hypothesis

#### 3.2 Research Methods

This study collected data using a questionnaire survey to measure the professional satisfaction, learning motivation, and learning engagement of vocational college students majoring in tea studies in Y City. The study also explored the relationships among these different dimensions.

### 3.3 Research Tools

This study involves three variables and uses three mature scales. The questionnaire is rated using a five-point Likert scale, with ratings ranging from 1 (strongly disagree) to 5 (strongly agree). The resulting ratings are as follows:

#### 3.3.1 Measurement of professional satisfaction

There are various types of questionnaires designed for measuring professional satisfaction, with researchers dividing the scale based on different aspects. For this study, we used the "Professional Satisfaction Scale" developed by scholar Guo Chengzhe (2023), which includes six questions.

#### 3.3.2 Measurement of learning motivation

This study examines various types of learning motivation and categorizes them into four dimensions: curiosity, pursuit of ability, desire for reputation, and altruistic direction (Mohsen & Sepideh, 2017). To assess these dimensions, the study utilizes a learning motivation scale derived from a questionnaire developed by Yang Mimi in 2019. The scale comprises nine questions for Academic Interest (IL1-IL9), six questions for pursuit of ability (PA1-PA6), five questions for reputation gain (GR1-GR5), and six questions for altruistic direction (AO1-AO6).

#### 3.3.3 Learning Engagement Scale

Researchers have categorized learning motivation into three dimensions: behavioral, cognitive, and emotional, through a review of the literature (Cigden & Ozge, 2019). Based on a mature learning motivation scale compiled by previous scholars, scholar Guo Chengzhe (2023) re-examined the scale for good reliability and validity. The behavioral dimension consists of 5 questions (BI1-BI5), the cognitive dimension consists of 7 questions (PI1-PI7), and the emotional dimension consists of 6 questions (EI1-EI6).

### 3.4 Research subject

Y City is located in the developed southeastern coastal area of China, where people lead comfortable lives. Since ancient times, it has been a major producer of tea and is one of the representatives of the Chinese tea market. Today, it has developed various tea-related industries through the deep processing of tea. Therefore, studying majors related to tea in this region has high research value and representativeness. This article focuses on the tea study advantages of Y City and selects students majoring in tea-related majors at the only vocational college in the region, N College, as the research object for investigation. This research survey plans to distribute 200 questionnaires in the preliminary stage to test the reliability and validity of various scales, and then distribute 580 questionnaires officially.

### 3.5 Analysis Methods

SPSS 22.0 and AMOS 20 software were utilized for data analysis in this study. Rong Taisheng (2007) employed the structural equation model (SEM) and bootstrap method to examine the data and hypothesis model of agricultural economics students in vocational colleges. Confirmatory factor analysis (CFA) was employed to assess the measurement model, and factor loading was obtained as a statistical indicator to assess the compatibility between the data of agricultural economics students and the latent variables. Statistical data included factor loading and standard deviation. Various commonly used indices, such as  $\chi^2$ ,  $\chi^2/DF$ , GFI, RMR, RMSEA, AGFI, NFI, and CFI (Bagozzi & Yi, 1988), were used to evaluate the fit. Cronbach's alpha coefficient and CR value were employed to assess the composite reliability of each construct, while the average variance extracted (AVE) was used to evaluate convergent validity (Fornell & Larcker, 1981).

### 3.6 Reliability and Validity

The measurement model for each factor was displayed using AMOS confirmatory factor analysis. The factor loadings ranged from .71 to .92, with each loading above .05.

The Professional Satisfaction Scale demonstrates strong reliability and validity, as indicated by a Cronbach's alpha coefficient of .93, CR value of .96, and AVE value of .82. The fitness index shows a  $\chi^2$  value of 95.46 ( $p < .05$ ),  $\chi^2/DF$  value of 10.61, GFI value of .91, RMR value of .01, RMSEA value of .16, AGFI value of .79, NFI value of .97, and CFI value of .98, all of which meet the standard for adaptation. Each construct of the Learning Motivation Scale exhibits high reliability and validity, with Cronbach's alpha coefficients of .93, .90, .88, and .86, CR values of .93, .89, .90, and .90, and AVE values of .59, .58, .65, and .60. The fitness index reveals a  $\chi^2$  value of 1683.40 ( $p < .05$ ),  $\chi^2/DF$  value of 5.75, GFI value of .71, RMR value of .05, RMSEA value of .11, AGFI value of .66, NFI value of .85, and CFI value of .87, all meeting the adaptation standard. Similarly, each construct of the Learning Investment Scale demonstrates high reliability and validity, with Cronbach's alpha coefficients of .87, .93, and .89, CR values of .91, .96, and .96, and AVE values of .66, .72, and .71. The fitness index indicates a  $\chi^2$  value of 993.10 ( $p < .05$ ),  $\chi^2/DF$  value of 7.524, GFI value of .77, RMR value of .02, RMSEA value of .13, AGFI value of .0, NFI value of .90, and CFI value of .91, all meeting the adaptation standard (Table-2).

Table 2

Dimension	Correlation coefficient							
	A	B	C	D	E	F	G	H
A Professional Satisfaction	.96(.82)							
B Academic Interest	.70**	.93(.59)						
C ability pursuit	.64**	.90**	.89(.58)					
D reputation gain	.47**	.69**	.73**	.90(.65)				
E altruistic direction	.52**	.73**	.79**	.78**	.90(.60)			
F behavioral	.60**	.84**	.86**	.71**	.75**	.91(.66)		
G cognitive	.61**	.86**	.88**	.73**	.78**	.89**	.96(.72)	
H emotional	.61**	.87**	.88**	.71**	.76**	.88**	.92**	.96(.71)

Note1: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Note 2: Diagonal values are the CR(AVE) values.

#### 4. Analysis Results

##### 4.1 Main Effect

During the SEM analysis, the standardized regression coefficients for each main effect were found to range from 0.78 to 0.96, indicating strong convergent validity. The main effect path resulted in the following values:  $\chi^2=490.465$  (p value is significant),  $\chi^2/DF=7.664$ , GFI=0.848, RMR=0.244, RMSEA=0.133, AGFI=0.783, NFI=0.932, CFI=0.941. The path coefficients are shown in Figure 2. Hypothesis H1, which states that learning motivation significantly affects learning engagement, is confirmed ( $\gamma = 0.97$ ,  $p < 0.001$ ).

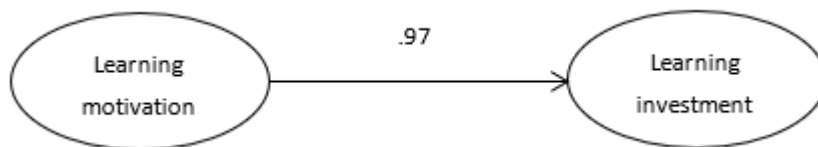


Figure 2. The main path of learning engagement influenced by learning motivation

#### 4.2 Structural Model Performance

The structural model consists of assumptions H2, H3, and H4, which involve the relationships between learning motivation, professional satisfaction, and learning investment. The standardized regression coefficients in the model range from .77 to .96. The fit indices of the structural model are as follows:  $\chi^2=268.957$  (significant p value),  $\chi^2/DF=4.338$ , GFI=.894, RMR=.022, RMSEA=.094, AGFI=.844, NFI=.963, CFI=.971, as depicted in Figure 3.

Assumption H2, which suggests that learning motivation has a significant impact on professional satisfaction, has been confirmed ( $\gamma = .69$ ,  $p < .001$ ). Assumption H3, which posits that professional satisfaction has a significant effect on learning investment, has also been confirmed ( $\gamma = .64$ ,  $p < .001$ ). In the mediating structural model, learning motivation has a significant effect on learning investment ( $\gamma = -.045$ ,  $p = .029$ ). Thus, it can be concluded that even after incorporating the mediating variable of professional satisfaction into the model, learning motivation still exerts a significant influence on learning investment in the main pathway, and the mediating effect of professional satisfaction is partial.

Assumption H4, which proposes that professional satisfaction acts as a mediator in the relationship between learning motivation and learning investment, has been confirmed as a partial mediator.



Figure 3. Effect of structural model

Using the bootstrap method to validate the results, we found that the indirect effect of professional satisfaction mediating the relationship between learning motivation and learning investment is -0.045. The 95% confidence intervals for both the BC and PC values do not include 0, and the p-value is less than 0.05, indicating that professional satisfaction does indeed play a mediating role.

Additionally, the direct effect of learning motivation on learning investment is 1.014. The 95% confidence intervals for both the BC and PC values do not include 0, and the p-value is less than 0.01, suggesting that the direct effect is statistically significant.

Furthermore, the total effect of learning motivation on learning investment is 0.983. The 95% confidence intervals for both the BC and PC values do not include 0, and the p-value is less than 0.01, indicating that the total effect is statistically significant (Table 4.1).

Table 4.1 summarizes the results of the mediating effect of professional satisfaction on the relationship between learning motivation and learning engagement.

Path	Estimate	95% Confidence Interval		
		BC/PC p value	BC	PC
Indirect path: Learning motivation → professional satisfaction → learning engagement	-0.045	.025/.031	-.102~-.006	-.098~-.005

Path	Estimate	95% Confidence Interval		
		BC/PC <i>p</i> value	BC	PC
Direct path:				
Learning motivation → Learning engagement	1.014	.001/.001	.966~1.074	.965~1.072
Main path				
Learning motivation → Learning engagement	.983	.001/.001	.950~.983	.950~.983

Note1: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

As mentioned previously, professional satisfaction partially mediates the relationship between learning motivation and learning investment. Specifically, it has a negative mediating effect. While greater learning motivation leads to increased learning investment, higher levels of professional satisfaction are associated with lower levels of learning investment.

## 5. Research Discussion and Suggestions

The findings suggest a positive relationship between professional satisfaction, learning motivation, and learning engagement. Students who experience higher levels of professional satisfaction and strong learning motivation are more likely to engage in their learning activities actively. This implies that when students are satisfied with their chosen field of study and are motivated to learn, they are more likely to invest more significant effort and dedication into their academic pursuits.

### 5.1 Research Discussion

The research findings provided support for Hypothesis 1, as depicted in Figure 2. The results indicated that learning motivation has a significant and positive effect on learning engagement. This finding aligns with existing literature on the subject. (Mäntylä & Vauras, 2021; Kim et al. & Lee, 2015; Wang & Holcombe, 2010; Grolnick, 2007; Liang, 2020; Wang et al., 2019). University students majoring in tea-related fields have a strong interest in job seeking, greater ability to pursue their goals, better reputation, and other favorable factors, all of which contribute to better engagement in learning behaviors, continuous cognitive reminders to study professional knowledge, and emotional enthusiasm for learning. Therefore, schools should understand how to stimulate students' learning motivation from various aspects and help them better understand why they have the motivation to learn in order to achieve better learning outcomes for students.

Figure 3 provides evidence supporting both Hypothesis 2 and Hypothesis 3. The results indicate that learning motivation has a significant and positive impact on professional satisfaction, which is consistent with previous research conducted by Wang & Jiang (2016), Wang & Eccles (2013), and Cho & Lee (2019). These findings suggest that when students' learning motivation is nurtured from various perspectives, it enhances their thirst for knowledge, leading to a more excellent pursuit of excellence. Consequently, students are more likely to effectively use the resources available in their chosen field of study, resulting in higher satisfaction with their academic endeavors. Moreover, a strong sense of professional satisfaction can foster an altruistic culture, creating a more harmonious learning environment where students are motivated to help one another.

Structural modeling was used to validate H4 in this study, as shown in Figure 3. It was confirmed that professional satisfaction partially negatively mediated the relationship between learning motivation and learning engagement, which aligns with Li et al.'s (2017) findings that professional satisfaction fully mediates this relationship. The results of this study indicate that while learning motivation and professional satisfaction have a



positive effect on learning engagement when considered individually, the mediating effect of professional satisfaction has a negative impact. Specifically, when learning motivation is stronger, the mediation of professional satisfaction leads to a decrease in learning engagement. The researchers combined their understanding of employment in this field and found that majors related to tea have advantages and are in high demand. Students in these majors have fewer difficulties finding employment. However, when students are satisfied with all aspects of their current major, they may become complacent and no longer invest additional energy in learning.

## 5.2 Research Recommendations

The following recommendations are proposed for this study:

First, Education practitioners should have a deeper understanding of students' psychology and implement measures to achieve balance. Teachers should stimulate students' learning motivation to encourage them to devote more energy to studying. However, students' satisfaction with their major is also essential. Therefore, it is crucial to maintain an appropriate level of satisfaction in the tea industry major and avoid allowing students to become too comfortable.

Second, this study suggests that when major satisfaction is used as a mediating variable, the negative effect is due to excessive comfort, which can cause a lack of competition among students. Therefore, education practitioners should consider enhancing students' competitive and crisis awareness, allowing them to grow in a favorable environment with a proactive spirit.

Third, by studying tea-related majors, this research discovered different results from the literature. To better assist educational management, it is recommended to consider additional situations, such as employment and government support levels. Furthermore, research on additional majors should be conducted to determine if similar situations exist and to better understand students' situations in school.

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