

The Impact of Professional Identity on College Students' Learning Engagement: The Mediating Role of Achievement Goal Orientation

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Abstract: In this critical historical stage of profound transformation and quality enhancement in higher education, the core position of talent cultivation has been elevated to an unprecedented height. This study aims to systematically reveal how professional identity influences college students' learning engagement by shaping these two types of achievement goal orientations, namely, to deeply analyze the complete mechanism of "professional identity → achievement goal orientation (approach/avoidance) → learning engagement." This study employed the College Students' Professional Identity Questionnaire, Achievement Goal Orientation Scale, and Learning Engagement Scale, randomly selecting 441 college students for empirical investigation. The empirical findings indicated: (1) Professional identity exerts a notable positive predictive influence on learning engagement. (2) Within the framework of achievement goal orientations, both approach and avoidance goal orientations serve as partial mediators in the relationship between professional identity and learning engagement. College students with a strong professional identity not only directly enhance their learning engagement but also significantly mold their engagement behaviors through two distinct motivational pathways—pursuing success (approach goals) and averting failure (avoidance goals).

Keywords: College Students; Professional Identity; Learning Engagement; Achievement Goal Orientation

1. Introduction

The "National Medium and Long-Term Education Reform and Development Plan

(2010-2020)" issued in 2010 first proposed "making quality improvement the core task of education reform and development," emphasizing that higher education needs to "optimize structure and develop distinctive features." In 2012, the Ministry of Education released the "Several Opinions on Comprehensively Improving the Quality of Higher Education" (also known as the "30 Higher Education Measures"), which explicitly required "adhering to connotation-driven development." Higher education transitioned from "scale expansion" to "quality enhancement," with student engagement becoming one of the core indicators for measuring educational quality.

However, numerous issues have emerged regarding the level of learning engagement among Chinese college students. Some students lack clear learning goals and plans, resulting in severely insufficient motivation, which leads to phenomena such as "hidden absenteeism" and "inefficient learning." These problems not only hinder students' personal growth and development, limiting their knowledge accumulation and skill enhancement, but also constrain the overall improvement of higher education quality, making it difficult to meet society's demand for high-quality talent. Against this backdrop, it is of great significance to delve into the intrinsic relationships among professional identity, achievement goal orientation, and learning engagement.

1.1 Professional Identity (PI)

Following Qin Panbo's framework, professional identity is defined as learners' emotional acceptance and cognitive recognition of their academic discipline, accompanied by positive behavioral commitment and a sense of congruence with

their professional roles. It is a process of transferring attitudes, emotions and even cognition [1]. Tang Shihua's review found that numerous previous studies have explored the relationships between college students' professional identity and variables such as achievement motivation, learning satisfaction, group information memory, self-efficacy, career identity, career maturity, perceived social support, learning engagement, learning motivation, self-esteem, anxiety, learning burnout, and learning pressure [2].

1.2 Achievement Goal Orientation (AGO)

Based on the competence theory, Dweck and colleagues proposed a relatively comprehensive achievement goal theory, introducing the concept of achievement goals into the achievement motivation theory [3]. In subsequent research, Pintrich and Elliot et al. explained that mastery goals can be divided into mastery-approach goal orientation and mastery-avoidance goal orientation. Consequently, a four-category classification of achievement goal orientation was proposed. Building upon this perspective, Elliot summarized the 2×2 achievement goal orientation framework, as Table 1.

Table 1. The 2×2 Classification Theoretical Framework of Quartile Achievement Goal Orientation

classification	Performance-oriented goal orientation	Mastery goal orientation
Positive (oriented toward success)	Performance-approach goal orientation	Master approaching goal orientation
Negative (failure-avoidant)	Achievement avoidance goal orientation	Master approaching goal orientation

1.3 Learning Engagement (LE)

Schaufeli et al. initially proposed a three-dimensional model of "vigor, dedication, and absorption" in the context of work engagement, suggesting that engagement is an individual's positive and fulfilling psychological state towards work. Subsequently, they adapted this model to the learning context, introducing the concept of learning engagement. Based on the learning engagement theory proposed by Schaufeli et al., Fang Laitan et al. posited that

learning engagement is a persistent, positive, and complete emotional and cognitive psychological state related to learning, research, and employment, specifically manifested through three core dimensions: vigor, dedication, and absorption [4].

1.4 The Relationship between PI and LE

Li Yongyue (2022) summarized research on learning engagement and its influencing factors, noting that learning engagement is affected by multiple factors, including individual, family, and school-related aspects [5]. Among school-related factors, fostering students' professional identity can subsequently influence their learning engagement. The Social Identity Theory proposed by Tajfel and Turner further provides a theoretical foundation for this connection, emphasizing that individuals derive self-identity through group memberships (e.g., academic majors, professions, clubs, etc.), which in turn shape their attitudes and behaviors [6]. Multiple empirical studies have found that learning engagement is significantly and positively predicted by professional identity. [7–10].

1.5 The Relationship between PI and AGO

Research by Tang Shihua, Wang Hui, and others found that students with high professional identity tend to adopt adaptive goal orientation strategies. On one hand, their deep recognition of the profession drives them to focus on knowledge internalization and long-term development, manifesting as stronger mastery-approach goal orientation. On the other hand, professional identity enhances self-efficacy, thereby reducing performance-avoidance tendencies caused by external evaluation pressures [11, 12]. For example, Zhang Junjie and colleagues discovered that medical students' professional identity positively predicts mastery-approach goal orientation (e.g., "desire to refine clinical skills") while decreasing performance-avoidance motivation (e.g., "fear of exam failure"). Liu Meiting's research revealed that professional identity is significantly positively correlated with both mastery-approach and performance-approach goal orientations.

Since achievement goals originate from motivational theories, research exploring learning motivation has also identified a

significant positive link between professional identity and learning motivation. For instance, Li Jie, Guo Jinfeng, and colleagues noted that stronger professional identity correlates with heightened fear of failure and related tendencies [13, 14]. Consequently, prior studies have reported contradictory results in this domain.

1.6 The Association between AGO and LE

Rong et al. discovered that mastery-approach goal orientation exerts a direct positive influence on the learning engagement of vocational students [14]. Studies indicate that individuals with mastery goal orientation and performance-approach goal orientation tend to show higher levels of learning engagement. Conversely, those who adopt a performance-avoidance goal orientation demonstrate a negative correlation with such engagement. [15, 16].

1.7 The Mediating Role of Achievement Goal Orientation

Existing research has yet to explore the mechanism by which achievement goal orientation operates between professional identity and learning engagement. Notably, the study by Zhang Junjie et al. (2022) revealed the mediating effect of learning motivation in this relationship, providing theoretical insights for investigating the potential pathways of achievement goal orientation.

Based on the aforementioned theoretical and empirical background, this study aims to thoroughly examine the intrinsic relationships among professional identity, achievement goal orientation, and learning engagement, with a particular focus on testing the mediating role of achievement goal orientation (including both approach and avoidance dimensions) in the process by which professional identity influences learning engagement. The following hypotheses are proposed:

H1: Professional identity is significantly positively correlated with learning engagement;
H2: Professional identity is significantly positively correlated with achievement goal orientation;

H3: Achievement goal orientation significantly influences learning engagement, with approach goal orientation showing a positive correlation and avoidance goal orientation exhibiting a negative correlation with learning engagement.

H4: Achievement goal orientation mediates the relationship between professional identity and learning engagement. Specifically, professional identity indirectly enhances learning engagement by promoting approach goal orientation, and it indirectly facilitates learning engagement by reducing avoidance goal orientation.

2. Research Methods

2.1 Participants

This survey randomly distributed 600 online questionnaires to university students. After collection, invalid responses were excluded based on completion time and screening questions, resulting in 441 valid questionnaires with a recovery rate of 73.5%. The specific distribution of participants is shown in Table 2.

Table 2. Distribution of Participants (N=441)

Demographic Variables		Sample number	Percentage
Sexual	Male	156	35.37%
	Female	285	64.63%
Grade	Freshman	159	36.05%
	Sophomore	156	35.37%
	Junior	103	23.36%
	Senior	23	5.22%
Origin of Student	Town	201	45.58%
	Countryside	240	54.42%
Major Selection	Independent choice	303	68.71%
	Parents' or others' wishes	66	14.97%
	School transfer	72	16.32%

2.2 Research Tools

2.2.1 College students' PI questionnaire

The College Students' Professional Identity Questionnaire developed by Qin Panbo was adopted, comprising four dimensions with a total of 23 items: affective, cognitive, appropriateness, and behavioral. These dimensions reflect students' degree of preference for their major, level of understanding, alignment with themselves, and professional behavioral performance. The questionnaire employs a 5-point Likert scale, where 1 = completely disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, and 5 = completely agree. In this study, the Cronbach's α coefficient for the questionnaire was 0.953.

2.2.2 Achievement goal orientation scale

The "Four-Dimensional Achievement Goal

Orientation Scale" developed by Liu Huijun and Guo Dejun in 2003, based on Pintrich's four-category classification of achievement goals, was adopted. This scale consists of 29 items, divided into four dimensions: performance-approach goals, mastery-approach goals, performance-avoidance goals, and mastery-avoidance goals. The scale employs a Likert five-point scoring method, with options ranging from "completely inconsistent" (1), "relatively inconsistent" (2), "somewhat consistent" (3), "relatively consistent" (4), to "completely consistent" (5). In this study, the Cronbach's α coefficient for this questionnaire was 0.922.

2.2.3 Learning engagement scale

Developed by Schaufeli et al. and revised by Fang Laitan and Shi Kan in 2008, the scale consists of three dimensions: vigor, dedication, and absorption, totaling 17 items. A self-rated 7-point scoring method was adopted, with 1 indicating "never" and 7 indicating "always/daily." Higher total scores indicate greater levels of learning engagement. In this study, the Cronbach's α for this questionnaire was 0.942.

2.3 Data Processing and Common Method Bias Test

Table 3. Comparison of Differences between Male and Female Students in Professional Identity, Achievement Goal Orientation, and Learning Engagement Levels

	Sexual	N	M	SD	<i>t</i>
Cognitive	Male	156	17.85	4.70	-4.333***
	Female	285	19.71	3.46	
Affective	Male	156	28.17	7.41	-1.230
	Female	285	29.02	6.69	
Behavioral	Male	156	19.50	4.00	-1.659
	Female	285	20.18	4.21	
Appropriateness	Male	156	12.59	4.07	-2.536*
	Female	285	13.55	3.32	
Professional Identity	Male	156	78.11	16.77	-2.778**
	Female	285	82.47	15.15	
Approach Goal Orientation	Male	156	57.13	10.74	-2.966**
	Female	285	60.61	12.30	
Avoidance Goal Orientation	Male	156	30.77	6.11	-3.583***
	Female	285	33.38	9.09	
Vigor	Male	156	20.58	7.11	-4.160***
	Female	285	23.58	7.33	
Dedication	Male	156	22.89	5.42	-0.954
	Female	285	23.40	5.43	
Absorption	Male	156	24.94	7.23	-2.423
	Female	285	26.72	7.40	
Learning Engagement	Male	156	68.41	17.19	-2.938**
	Female	285	73.70	18.57	

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

3.1.2 Analysis of differences in college

SPSS 27.0 and the Process 4.1 plugin were used for data analysis. The Harman single-factor test was utilized to assess common method bias. The findings indicated: KMO = 0.920, Bartlett's test statistic = 22144.383, $p < 0.001$, with 12 factors exhibiting eigenvalues exceeding 1. The maximum variance explained by a single factor was 14.32%, which fell below the conventional empirical threshold of 40%, suggesting no substantial common method bias in this research.

3. Results

3.1 Demographic Characteristics Analysis of Research Variables

3.1.1 Gender differences in major identity, achievement goal orientation, and learning engagement among college students

Independent samples t-tests were conducted to compare the differences in major identity, achievement goal orientation, and learning engagement levels between male and female students. The results are shown in Table 3. The study found that female students scored significantly higher than male students in major identity, achievement goal orientation, and learning engagement levels.

Table 3. Comparison of Differences between Male and Female Students in Professional Identity, Achievement Goal Orientation, and Learning Engagement Levels

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	Female	285	33.38	9.09	
Vigor	Male	156	20.58	7.11	-4.160***
	Female	285	23.58	7.33	
Dedication	Male	156	22.89	5.42	-0.954
	Female	285	23.40	5.43	
Absorption	Male	156	24.94	7.23	-2.423
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Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

students' major identity, achievement goal

orientation, and learning engagement across grades

A one-way ANOVA was conducted to analyze the differences in college students' major identity, achievement goal orientation, and learning engagement across different grades, as shown in Table 4. The study found significant differences among students of different grades in avoidance goal orientation

and learning engagement. In terms of avoidance goal orientation, freshmen scored significantly higher than sophomores and juniors, indicating that new students are more inclined to avoid failure, such as preventing course failures or poor academic performance. Regarding learning engagement, juniors exhibited the highest level of engagement, while seniors showed a significant decline.

Table 4. Comparison of Differences in Professional Identity, Achievement Goal Orientation, and Learning Engagement among College Students of Different Grades

	Grade	N	M	SD	F	Post hoc comparison
Cognitive	1	159	18.35	4.28	3.266*	3>1
	2	156	19.13	4.10		
	3	103	19.84	3.56		
	4	23	19.83	3.26		
Affective	1	159	28.53	7.33	0.440	/
	2	156	28.47	6.83		
	3	103	29.41	6.25		
	4	23	28.70	8.28		
Behavioral	1	159	19.89	4.18	1.991	/
	2	156	19.43	4.28		
	3	103	20.62	3.90		
	4	23	20.70	3.77		
Appropriateness	1	159	12.99	3.82	1.380	/
	2	156	13.04	3.66		
	3	103	13.58	3.23		
	4	23	14.30	3.59		
Professional Identity	1	159	79.77	16.58	1.521	/
	2	156	80.06	15.88		
	3	103	83.46	14.14		
	4	23	83.52	17.36		
Approach Goal Orientation	1	159	60.26	11.52	2.371	/
	2	156	57.41	12.21		
	3	103	60.41	11.71		
	4	23	62.00	11.72		
Avoidance Goal Orientation	1	159	34.00	7.94	2.979*	1>2=3
	2	156	31.63	7.89		
	3	103	31.63	9.03		
	4	23	31.09	8.05		
Vigor	1	159	22.14	7.14	2.712*	3>1>2
	2	156	21.97	7.81		
	3	103	24.27	6.99		
	4	23	21.00	7.03		
Dedication	1	159	23.56	5.25	2.094	/
	2	156	22.44	5.68		
	3	103	24.00	4.99		
	4	23	22.70	6.33		
Absorption	1	159	26.51	7.01	5.651***	3>2=4, 1>2
	2	156	24.67	7.62		
	3	103	28.12	7.02		
	4	23	23.70	7.65		
Learning Engagement	1	159	72.21	17.42	3.871**	3>2=4
	2	156	69.08	19.29		
	3	103	76.39	17.03		
	4	23	67.39	18.51		

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

3.1.3 Analysis of differences in major selection regarding professional identity, achievement goal orientation, and learning engagement

among college students

An analysis of the differences in professional identity, achievement goal orientation, and

learning engagement among college students based on their major selection revealed that there were no significant differences in learning engagement and avoidance goal orientation among students from different majors. In terms of professional identity,

freshmen exhibited higher levels of professional identity compared to sophomores and juniors. Regarding approach goal orientation, freshmen placed greater emphasis on pursuing success than juniors. As shown in Table 5.

Table 5. Comparison of Differences in Major Identity, Achievement Goal Orientation, and Learning Engagement among College Students across Different Majors

	MS	N	M	SD	F	Post hoc comparison
Cognitive	1	303	19.31	4.00	2.182	/
	2	66	18.74	3.92		
	3	72	18.26	4.21		
Affective	1	303	29.96	6.47	20.007***	1>2>3
	2	66	27.55	6.40		
	3	72	24.60	7.70		
Behavioral	1	303	20.36	3.95	6.364**	1>3
	2	66	19.64	4.08		
	3	72	18.47	4.69		
Appropriateness	1	303	13.74	3.45	11.792***	1>2=3
	2	66	12.56	3.15		
	3	72	11.61	4.21		
Professional Identity	1	303	83.36	14.97	14.271***	1>2>3
	2	66	78.48	14.46		
	3	72	72.94	17.88		
Approach Goal Orientation	1	303	60.15	11.51	3.595*	1>3
	2	66	59.52	12.07		
	3	72	56.00	12.77		
Avoidance Goal Orientation	1	303	32.30	8.40	1.861	/
	2	66	34.15	7.94		
	3	72	31.58	7.79		
Vigor	1	303	23.12	7.37	3.715*	1>2
	2	66	20.58	6.40		
	3	72	21.76	7.98		
Dedication	1	303	23.66	5.32	3.737*	1>2
	2	66	21.74	4.58		
	3	72	22.75	6.32		
Absorption	1	303	26.22	7.36	1.034	/
	2	66	24.92	6.90		
	3	72	26.58	7.90		
Learning Engagement	1	303	73.00	18.09	2.791	/
	2	66	67.24	16.01		
	3	72	71.10	20.27		

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

3.2 Correlation Analysis

A correlation analysis was conducted on professional identity, achievement goal orientation, and learning engagement. The results in Table 6 indicate that professional identity, achievement goal orientation, and learning engagement show significant positive correlations. Hypotheses H1 and H2 are

supported.

3.3 Mediation Effect Test

This study employed Model 4 in the PROCESS4.1 plug-in to examine the mediating effects of approach goal orientation and avoidance goal orientation between professional identity and learning engagement, while controlling for gender, grade, and major

selection.

3.3.1 Mediation effect test of approach goal orientation

The mediation analysis revealed that professional identity significantly and positively predicted both learning engagement and approach goal orientation. Approach goal orientation also significantly and positively

predicted learning engagement. The indirect effect was 0.322, with a Bootstrap 95% CI that did not include 0 (0.233, 0.417). The mediation effect accounted for 56.14% of the total effect, indicating that approach goal orientation partially mediated the influence of professional identity on learning engagement. Details are presented in Table 7 and Figure 1.

Table 6. Correlation Analysis of Professional Identity, Achievement Goal Orientation, and Learning Engagement

	1	2	3	4	5	6	7	8	9	10	11
1	1										
2	.636**	1									
3	.555**	.559**	1								
4	.613**	.683**	.589**	1							
5	.819**	.903**	.782**	.838**	1						
6	.392**	.406**	.758**	.512**	.593**	1					
7	.109*	0.053	.345**	.096*	.163**	.579**	1				
8	.331**	.309**	.567**	.439**	.468**	.565**	.283**	1			
9	.277**	.407**	.577**	.433**	.499**	.571**	.154**	.701**	1		
10	.198**	.273**	.486**	.369**	.382**	.502**	.212**	.735**	.725**	1	
11	.297**	.357**	.598**	.456**	.492**	.602**	.246**	.911**	.875**	.918**	1

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

1=Cognitive, 2=Affective, 3=Behavioral, 4=Appropriateness, 5=Professional Identity, 6=Approach Goal Orientation, 7=Avoidance Goal Orientation, 8=Vigor, 9=Dedication, 10=Absorption, 11=Learning Engagement

Table 7. Mediating Effect Test of Approach Goal Orientation

	Effect size	BootSE	BootLLCI	BootULCI	Effect size proportion
Totaleffect	0.574	0.066	0.121	0.384	
Direct effect	0.252	0.089	0.548	0.898	43.86%
Indirect effect	0.322	0.047	0.233	0.417	56.14%

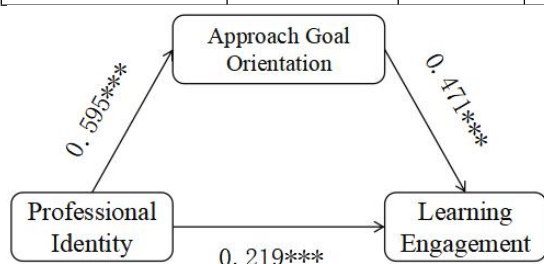


Figure 1. Mediation Effect Diagram of Approach Goal Orientation

3.3.2 Mediation effect test of avoidance goal orientation

The mediation effect of avoidance goal

orientation on professional identity and learning engagement was tested, with the results shown in Table 8 and Figure 2. Professional identity significantly and positively predicted learning engagement and avoidance goal orientation; avoidance goal orientation significantly and positively predicted learning engagement. The indirect effect was 0.031, Bootstrap 95% CI (0.008, 0.063), accounting for only 5.33% of the total effect, indicating a weak mediating role of avoidance goal orientation.

Table 8. Test of the Mediating Role of Avoidance Goal Orientation

	Effect size	BootSE	BootLLCI	BootULCI	Effect size proportion
Totaleffect	0.574	0.060	0.423	0.661	
Direct effect	0.543	0.111	0.137	0.577	94.67%
Indirect effect	0.031	0.014	0.008	0.063	5.33%

4. Discussion

4.1 Analysis of Demographic Characteristics

Female students significantly outperformed male students in professional identity, achievement goal orientation (approach/avoidance), learning engagement,

and its sub-dimensions. Social identity theory posits that individuals construct self-identity through group membership (e.g., professional identity) [9]. Female students may be more inclined to integrate professional identity into the core of their self-concept, thereby reinforcing the self-perception of being a "competent professional" through high engagement.

First-year students exhibited significantly higher levels of avoidance goal orientation compared to second- and third-year students, possibly due to the adaptation pressures faced by freshmen, who are more focused on avoiding failure (e.g., failing courses). Third-year students, engaged in in-depth exploration of specialized courses, reached a peak in learning engagement (highest levels of vigor and dedication), likely driven by the heightened sense of purpose during the initial stages of preparing for further education or employment (e.g., graduate school entrance exams or internships). Fourth-year students showed a decline in learning engagement, possibly due to the diversion of energy toward job-seeking activities.

Students who autonomously chose their majors demonstrated significantly higher levels of professional identity, approach goal orientation, learning vigor, and dedication compared to other groups. This aligns with self-determination theory, as autonomous choice fulfills the need for "autonomy," thereby stimulating intrinsic motivation and promoting goal-setting and engagement behaviors.

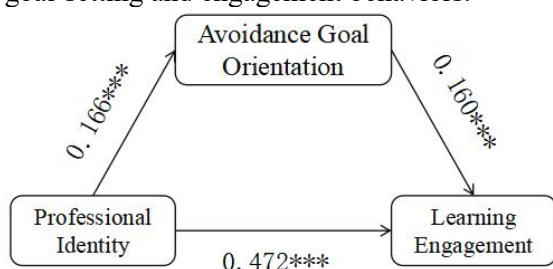


Figure 2. Mediating Effect Diagram of Avoidance Goal Orientation

4.2 The Relationship between PI and LE

The findings of this study confirm Hypothesis H1, indicating a significant positive correlation between professional identity and learning engagement. This conclusion aligns with the social identity theory proposed by Tajfel and Turner [9] and is consistent with the research by Wang Ping et al. [10]. When college

students exhibit higher professional identity, it reflects more positive emotions toward their major, deeper understanding, stronger behavioral commitment, and a greater perceived person-major fit. This sense of identity translates into intrinsic motivation, driving students to demonstrate higher levels of vitality, dedication, and sustained concentration in their studies. Students with strong professional identity are more likely to proactively overcome learning challenges and strive for mastery in their field, thereby significantly enhancing their learning engagement.

4.3 The Mediating Role of Approach Goal Orientation

Approach goal orientation functions as a mediator in the relationship between professional identity and learning engagement, exhibiting a substantial effect size that accounts for 56.14% of the total effect. Specifically, a high level of professional identity significantly and positively predicts approach goal orientation, meaning students are more inclined to set and pursue goals aimed at mastering knowledge and skills or achieving academic excellence. This success-oriented motivational state, in turn, directly drives more proactive and persistent learning engagement behaviors. This suggests that professional identity largely promotes learning engagement indirectly by fostering students' positive motivation (approach goal orientation) to pursue professional competence and academic achievement.

4.4 The Mediating Role of Avoidance Goal Orientation

Avoidance goal orientation plays a mediating role between professional identity and learning engagement. The higher the level of professional identity among college students, the higher their tendency to avoid mistakes or undesirable behaviors, and the more they focus on maintaining existing achievements or abilities. Consequently, to evade negative outcomes, students still increase their learning engagement to sustain their current level.

This study found that professional identity positively influences both approach goal orientation and avoidance goal orientation. Achievement goal orientation is part of the achievement motivation theory, which aligns

with the findings of Li Jie et al. Under certain circumstances, avoidance goals may transform into responsibility-driven motivations (e.g., "not to disappoint professional expectations"). When professional identity is high, students avoid not only the consequences of "failing to meet professional standards" but also the fear of failure.

Meanwhile, both approach goal orientation and avoidance goal orientation have a significant positive impact on learning engagement. Previous research has debated the effect of avoidance goal orientation on learning engagement, whereas this study found a positive correlation between avoidance goal orientation and learning engagement. This result supports the dual-path model proposed by Roskes et al., wherein both approach and avoidance goal orientations can increase cognitive effort through different pathways—the former by inducing flexibility and the latter by inducing persistence [17]. When individuals with avoidance goal orientation recognize that cognitive effort helps them achieve their goals (avoiding failure), they invest more effort and adopt a more persistent processing style (e.g., repetitive practice).

This finding suggests that avoidance goal orientation (especially when combined with high professional identity) does not necessarily lead to negative learning outcomes. Under certain conditions (e.g., internalized as a sense of responsibility), it may also transform into a driving force for sustaining learning behaviors. However, compared to the positive motivation for growth and success stimulated by approach goal orientation, the driving effect of avoidance goal orientation on learning engagement in this study's context is relatively weak.

In summary, this study demonstrates that enhancing college students' professional identity is key to improving their learning engagement. This facilitative effect is primarily achieved through two pathways: first, professional identity directly boosts learning engagement; second, it indirectly enhances learning engagement by stimulating students' positive motivation to pursue competence growth and academic success (approach goal orientation). In contrast, the mediating role of failure-avoidance motivation (avoidance goal orientation) is very limited. This provides important theoretical foundations and practical

directions for higher education professionals to guide students in forming positive learning motivation patterns and optimizing learning engagement.

5. Conclusions

This research indicated that professional identity has a significant positive predictive effect on college students' learning engagement. In terms of achievement goal orientations, both approach goal orientation and avoidance goal orientation exert partial mediating effects in the relationship between professional identity and learning engagement.

The above research systematically analyzes the relationship between professional identity, achievement goal orientation, and learning engagement, providing new evidence for theoretical research in the fields of educational psychology and higher education. Clarifying the mediating role of achievement goal orientation in the influence of professional identity on learning engagement helps to better understand the intrinsic psychological mechanisms of college students' learning behaviors and provides direction for subsequent theoretical construction.

This study also has limitations. First, there are constraints in the sample structure: the sample size of senior students was only 23 (accounting for 5.22%), which may lead to insufficient representativeness of higher-grade data and difficulty in accurately reflecting the complete developmental trends across different grades. The sample was concentrated in the undergraduate population, lacking comparisons with higher academic levels such as graduate students, thereby limiting the generalizability of the conclusions to all stages of higher education. Second, the data adopted a cross-sectional design, reflecting only the relationships among variables at a single time point and failing to track the dynamic associations between professional identity, achievement goals, and learning engagement over time.

Future research could further expand the sample scope and employ longitudinal tracking techniques to explore their dynamic relationships and the chain mediating effects of other psychological variables (such as self-efficacy and professional commitment), thereby providing a more comprehensive theoretical basis for optimizing college

students' learning behaviors.

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