

Article

The Effect of Career Identity on Learning Engagement Among Vocational Undergraduate Students: The Moderating Role of Psychological Capital

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Abstract: Purpose: To examine the effect of career identity on learning engagement among vocational undergraduate students and to test the moderating role of psychological capital. Methods: A questionnaire survey was conducted among 711 vocational undergraduate students using the Career Identity Scale, Psychological Capital Questionnaire, and National Survey of Student Engagement. SPSS 26.0 and PROCESS 3.5 Model 1 were used for data analysis. Results: (1) Career identity significantly and positively predicted learning engagement; (2) psychological capital significantly and positively predicted learning engagement; (3) the interaction between career identity and psychological capital significantly predicted learning engagement, indicating a significant moderating effect of psychological capital; and (4) simple slope analysis showed that the positive effect of career identity on learning engagement was stronger at lower levels of psychological capital. Conclusion: Career identity is an important psychological factor associated with learning engagement among vocational undergraduate students, while psychological capital changes the strength of the relationship between career identity and learning engagement. These findings contribute to a more nuanced understanding of the psychological mechanisms underlying learning engagement in vocational undergraduate education.

Keywords: Career Identity; Learning Engagement; Psychological Capital; Vocational Undergraduate Students; Moderating Effect

1. Introduction

In recent years, undergraduate-level vocational education has gradually become an important component of the modern vocational education system. Vocational undergraduate education emphasizes not only technical and practical skills but also professional competence, occupational qualities, and sustainable career development. In this context, whether students can maintain stable and sustained learning engagement is directly related to the quality of vocational undergraduate talent cultivation.

Learning engagement is an important indicator of students' learning status and the quality of higher education. Astin's student involvement theory suggests that the more time, energy, and psychological resources students invest in learning activities, the greater their learning and developmental outcomes [1]. Vocational undergraduate education is strongly career-oriented and practice-oriented. Students are expected to connect theoretical learning and skills training with future career development; therefore, learning engagement affects not only academic performance but also the formation of vocational competence.

In practice, some vocational undergraduate students still experience unclear learning goals, insufficient interest in their majors, and unstable learning motivation. Compared with explanations that focus only on teaching methods, examining students' identification

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with their future careers and their positive psychological resources may provide a more useful perspective for understanding the formation of sustained learning behavior.

Career identity refers to an individual's cognition, evaluation, and emotional identification with a future occupational role and constitutes an important psychological foundation for career development [2]. Students with stronger career identity generally have clearer career goals and a stronger sense of professional belonging and are more willing to invest in learning in order to achieve their career goals.

Social identity theory proposes that when a role becomes incorporated into the self-concept, individuals tend to maintain and reinforce that identity through corresponding behavior. When students identify with their future occupational roles, professional learning is no longer merely a requirement for completing a degree but becomes an important route toward career goals. Jiang's research likewise indicated a close relationship between career identity and learning engagement.

Luthans et al. defined psychological capital as a positive psychological state composed of self-efficacy, hope, optimism, and resilience [3]. Previous research has shown that psychological capital is associated with positive attitudes, behavioral performance, and adaptation, and may increase students' persistence and initiative when they encounter academic pressure.

According to conservation of resources theory [4], the resources available to individuals influence their behavioral choices when coping with pressure and pursuing goals. Students with higher psychological capital may maintain learning through stronger self-efficacy, hope, optimism, and resilience. When psychological capital is relatively low, the sense of direction and meaning provided by career identity may become more important. Psychological capital may therefore alter the strength of the effect of career identity on learning engagement.

Research focusing specifically on vocational undergraduate students remains limited, and the moderating role of psychological capital has not been sufficiently tested. This study therefore examines the effect of career identity on learning engagement and tests psychological capital as a moderator.

2. Theoretical Basis and Research Hypotheses

2.1. Career Identity and Learning Engagement

Career identity helps students understand the connection between professional learning and future work and supports the formation of stable career goals and value judgments. Previous research has found that career identity is significantly associated with learning motivation, academic adaptation, and learning engagement. Accordingly, the following hypothesis is proposed:

H1: Career identity significantly and positively predicts learning engagement among vocational undergraduate students.

2.2. The Moderating Role of Psychological Capital

Psychological capital enhances an individual's capacity to cope with difficulties and challenges and is associated with positive learning outcomes such as learning engagement. According to conservation of resources theory, different levels of psychological resources may alter the strength with which other psychological factors affect behavioral outcomes. Accordingly, the following hypothesis is proposed:

H2: Psychological capital moderates the relationship between career identity and learning engagement.

3. Methods

3.1. Participants

Convenience sampling was used to recruit students from a vocational undergraduate university in Guangdong Province. An anonymous questionnaire survey was administered through course-based organization. Before data collection, participants were informed of the purpose of the study and the principle of voluntary participation.

The questionnaires were distributed and collected through Wenjuanxing, an online survey platform.

A total of 736 questionnaires were returned. After excluding responses with excessively short completion times, obvious patterned responding, or substantial missing data, 711 valid questionnaires remained, yielding a valid response rate of 96.60%.

3.2. Measures

3.2.1. Career Identity Scale

Career identity was measured using the Career Identity Scale for College Students developed [5]. The scale contains 16 items covering dimensions such as perceived career benefits, external influencing factors, and career motivation. Items are rated on a five-point Likert scale, with higher scores indicating a higher level of career identity.

3.2.2. Psychological Capital Questionnaire

Psychological capital was measured using the Psychological Capital Questionnaire (PCQ) revised [6]. The questionnaire contains 16 items across four dimensions: self-efficacy, hope, resilience, and optimism. Items are rated on a five-point Likert scale, with higher scores indicating higher psychological capital.

3.2.3. Learning Engagement Scale

Learning engagement was measured using the National Survey of Student Engagement (NSSE) [7]. The instrument covers classroom participation, academic challenge, student-faculty interaction, peer interaction, extracurricular learning activities, and learning support. Higher scores indicate higher levels of learning engagement.

3.3. Data Analysis

SPSS 26.0 was used for data processing, and PROCESS 3.5 Model 1 was employed to test the moderating role of psychological capital [8]. Career identity (PIS) was specified as the independent variable, learning engagement (LES) as the dependent variable, and psychological capital (PCS) as the moderator. The confidence level was set at 95%, and bootstrap procedures were used to examine the stability of the effects.

4. Results

4.1. Preliminary Test

Before testing the moderation effect, Harman's single-factor test was conducted on all observed variables. The unrotated exploratory factor analysis extracted 10 factors with eigenvalues greater than 1, and the first factor accounted for 28.22% of the total variance, which was well below the 40% criterion [9]. The data were therefore considered suitable for subsequent moderation analysis.

4.2. Moderation Analysis

The overall model showed a statistically significant fit ($R^2 = 0.176$, $F = 50.239$, $p < .001$), indicating that PIS, PCS, and their interaction jointly explained 17.57% of the variance in LES.

Table 1 presents the PROCESS results. After controlling for variables such as gender and age, PIS had a significant positive main effect on LES ($\beta = 3.059$, $SE = 0.310$, $p < .001$), and PCS also had a significant positive main effect on LES ($\beta = 2.065$, $SE = 0.266$, $t = 7.758$, $p < .001$). More importantly, the PIS $\times$ PCS interaction was significant ($\beta = -0.050$, $SE = 0.004$, $t = -11.218$, $p < .001$), and its 95% confidence interval $[-0.065, -0.033]$ did not include zero, indicating that psychological capital significantly moderated the relationship between career identity and learning engagement (As shown in Figure 1).

Table 1. Moderation Analysis Based on Process 3.5 Model 1

Variable	β	SE	t	p	BootLLCI	BootULCI
PIS	3.059	0.310	9.865	< .001	2.022	3.912
PCS	2.065	0.266	7.758	< .001	0.991	3.043

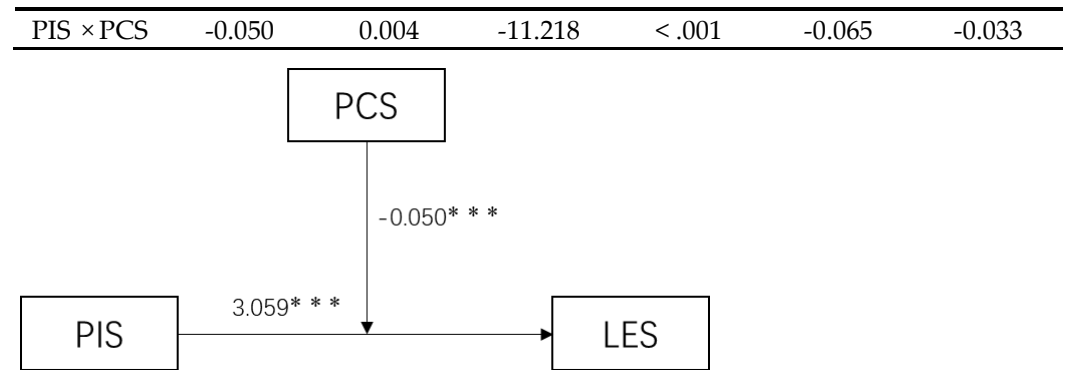


Figure 1. Moderating Effect of Psychological Capital

4.3. Direction and Boundary Conditions of the Moderating Effect

The Johnson-Neyman analysis showed that when psychological capital was below 55.400, the predictive effect of career identity on learning engagement was significant, with a 95% confidence interval of [0.023, 0.045]. When psychological capital exceeded 57.600, the effect was no longer significant. Thus, as psychological capital increased, the effect of career identity on learning engagement gradually weakened.

4.4. Robustness Test

To examine the stability of the results, the number of bootstrap samples was increased from 5,000 to 10,000 while all other parameters remained unchanged, and PROCESS 3.5 Model 1 was rerun. The PIS × PCS effect on LES remained significant ($\beta = -0.050$, $SE = 0.004$, $t = -11.218$, $p < .001$), with a 95% confidence interval of [-0.065, -0.033]. The moderation effect therefore showed no substantive change. Simple slope analysis further indicated that career identity predicted learning engagement more strongly at lower levels of psychological capital and less strongly at higher levels.

5. Discussion

5.1. Career Identity Significantly Promotes Learning Engagement

The results showed that career identity significantly and positively predicted learning engagement among vocational undergraduate students, supporting H1 and remaining broadly consistent with previous research [2,10].

Career identity reflects an individual's value cognition and emotional identification with a future occupational role. According to social identity theory, once an occupational role becomes incorporated into the self-concept, students are more likely to maintain and reinforce this identity through sustained learning. Professional learning then becomes connected with the question of what kind of professional the student intends to become, rather than simply being a means of meeting course requirements. Learning consequently acquires clearer direction and meaning.

From a career-development perspective, stronger career identity helps students connect professional learning with future work and strengthens goal clarity and professional belonging. Recent research has also found significant relationships among career identity, learning engagement, and teaching-practice competence [10]. Research focusing on vocational undergraduate students suggests that professional identity may influence learning engagement through future-oriented factors. For career-oriented vocational undergraduate education, identity is therefore not merely an abstract attitude; it may be translated into sustained engagement in coursework, skills training, and practical activities.

Because vocational undergraduate education is strongly career-oriented, clearer understanding of occupational value, job requirements, and career pathways may help students connect current learning with competence development and future work.

5.2. Psychological Capital Significantly Promotes Learning Engagement

The findings further showed that psychological capital significantly and positively predicted learning engagement, which is consistent with the basic propositions of positive psychological capital theory [3,11].

Psychological capital consists of self-efficacy, hope, optimism, and resilience. Self-efficacy strengthens students' belief that they can complete learning tasks; hope helps them identify pathways toward their goals; optimism supports positive expectations about future outcomes; and resilience enables them to recover from setbacks and continue investing effort. Together, these resources help students remain active when they encounter academic pressure, skills training, and practical tasks.

Vocational undergraduate programs emphasize the integration of theory and practice. Students must complete academic coursework while simultaneously dealing with skills training, practical instruction, and the development of occupational competence. Higher psychological capital can help students sustain confidence and action when facing difficulties and reduce withdrawal after temporary setbacks, thereby stabilizing learning engagement. Avey et al.'s meta-analysis likewise showed that positive psychological capital is closely associated with positive attitudes and behavioral performance [11].

5.3. Psychological Capital Moderates the Relationship between Career Identity and Learning Engagement

The central finding of this study is that psychological capital significantly moderated the relationship between career identity and learning engagement. The interaction term was significant, and the Johnson-Neyman analysis and simple slope analysis further showed that career identity had a stronger predictive effect on learning engagement when psychological capital was lower; as psychological capital increased, this effect gradually weakened.

Conservation of resources theory proposes that individuals acquire, retain, and use resources to cope with environmental demands and pressure [4]. Psychological capital can be regarded as an important positive psychological resource supporting sustained action. When students have relatively low psychological capital, their self-efficacy, hope, optimism, and resilience are comparatively limited, and their persistence in learning may depend more heavily on clear occupational meaning and goal support. Under these conditions, the direction and value provided by career identity are more likely to become important sources of motivation for maintaining learning engagement, resulting in a stronger relationship between career identity and engagement.

In contrast, students with higher psychological capital possess more abundant positive psychological resources. They are more confident in seeking solutions when difficulties arise and are better able to maintain or restore their learning state after setbacks. Even when career identity varies, these students may still rely on their own psychological resources to sustain relatively stable learning engagement. Consequently, the predictive effect of career identity becomes comparatively weaker.

It should be emphasized that this negative interaction does not mean that psychological capital reduces learning engagement. The main-effect results show that psychological capital itself significantly and positively predicts learning engagement. The moderation result indicates only that the slope linking career identity to learning engagement changes as psychological capital increases. The findings should therefore be interpreted by considering both the positive main effect of psychological capital and its moderating effect on the strength of the career identity-engagement relationship, rather than treating the negative interaction as evidence of a detrimental effect.

5.4. Psychological Mechanisms Underlying Learning Engagement in Vocational Undergraduate Students

Taken together, the findings suggest that learning engagement among vocational undergraduate students can be understood as the joint outcome of career direction, psychological resources, and learning behavior. Career identity addresses why students learn and what occupational goals they are learning for, whereas psychological capital

affects whether they can persist when difficulties arise and whether they believe they are capable of continuing to learn.

Vocational undergraduate education closely links majors with occupations and practical training. Career identity may sustain long-term direction, while psychological capital helps translate goals into continued action; both are therefore relevant to learning engagement.

The moderation result further suggests that learning motivation may differ across levels of psychological capital: career identity is more closely linked to engagement when psychological capital is lower, whereas positive psychological resources provide more stable support when psychological capital is higher.

6. Conclusions

(1) Career identity significantly and positively predicts learning engagement among vocational undergraduate students. Stronger career identity helps students clarify the connection between professional learning and future work and supports more sustained learning engagement.

(2) Psychological capital significantly and positively predicts learning engagement. Positive psychological resources, including self-efficacy, hope, optimism, and resilience, help students maintain an active and stable learning state.

(3) Psychological capital significantly moderates the relationship between career identity and learning engagement. When psychological capital is lower, career identity has a stronger positive effect on learning engagement; as psychological capital increases, this effect becomes comparatively weaker.

(4) Career identity and psychological capital jointly influence learning engagement from the perspectives of career direction and psychological resources, respectively. Learning engagement among vocational undergraduate students depends not only on whether students identify with their future occupations but also on whether they can draw on positive psychological resources to cope continuously with academic and practical challenges.

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