

Perceived Social Support and Craftsmanship Spirit in Vocational Students: Mediating Roles of Professional Identity and Identity Recognition

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Abstract

In the context of a transforming manufacturing industry globally, skilled talents with a “craftsmanship spirit” are crucial for enhancing industrial competitiveness. While existing research primarily focuses on the development of “craftsmanship spirit” among frontline workers, it often overlooks the cultivation of this spirit in “skill-oriented reserve talents” within higher vocational education. This study, grounded in social support theory, investigates how “perceived social support” among higher vocational students positively influences the development of their “craftsmanship spirit,” with “professional identity” and “identity recognition” acting as mediators. To mitigate potential “common method bias,” we employed a multi-wave survey design, collecting data from 348 students across three higher vocational institutions at three different time points. The findings reveal that “perceived social support” significantly and positively impacts the development of “craftsmanship spirit” in higher vocational students. Furthermore, both “professional identity” and “identity recognition” are essential mediators in this relationship. This research advances the theoretical understanding of “craftsmanship spirit’s” antecedents while offering practical guidance for fostering professional ethics and identity cognition among skill-oriented talents in vocational education.

Keywords

craftsmanship spirit; higher vocational education; identity recognition; perceived social support; professional identity

1. Introduction

In the face of escalating global economic competition, markets are increasingly demanding higher standards of product quality and innovation. Consequently, the manufacturing industry is under immense pressure to transform and upgrade. Central to this transformation is the need for highly skilled personnel who not only exhibit technical prowess but also embody a spirit of innovation and professional dedication. The craftsmanship spirit encapsulates a set of values and attitudes toward work, reflecting the goals individuals consider worthy of pursuit. These internalized goals shape their work preferences and guide their behavior, typically manifesting in qualities such as deep dedication, persistent focus, a drive for skill mastery, and the relentless pursuit of perfection (Gao et al., 2020). Skilled workers embodying the craftsmanship spirit are crucial for enterprise transformation, as they enhance product quality, boost corporate competitiveness, and drive technological innovation.

Existing research on the craftsmanship spirit has predominantly focused on frontline workers in workplaces, examining how individual personality traits and specific motivational strategies foster this spirit (Y. Zhu et al., 2021). However, a significant gap in current literature is the neglect of cultivating this spirit among students in higher vocational education. This research gap is particularly salient given that higher vocational colleges serve as critical institutions for cultivating high-quality skilled talent and play a central role in the national talent development system (Xiong et al., 2024). A systematic investigation into the factors influencing the cultivation of the craftsmanship spirit within this context would not only contribute to the supply of competent professionals for the manufacturing industry but also provide theoretical and practical implications for the reform and development of vocational education. Accordingly, this study shifts the research focus from in-service skilled workers in the workplace to prospective skilled talents being trained in vocational education, aiming to explore the antecedents and underlying mechanisms that foster the craftsmanship spirit among higher vocational students.

Existing literature concerning the antecedents of craftsmanship spirit among students in higher vocational education has primarily centered on three dimensions: individual characteristics of students, the quality of mentor-apprentice relationships, and the structure and content of practical training. In studies concerning personality factors, previous research has mainly investigated the relationship between the Big Five personality traits and the craftsmanship spirit, seeking to identify which personality traits are more conducive to its development. For instance, Z. Li et al. (2024) found that individuals with high conscientiousness and openness are more likely to develop the craftsmanship spirit. Regarding the quality of master-apprentice relationships, Ye et al. (2020) revealed that the interpersonal quality of mentorship within apprenticeship settings significantly contributes to the development of professional attitudes, enhancing skill levels, and fostering the craftsmanship spirit. Furthermore, some scholars argue that mentorship experiences within this relationship are also crucial. The study by Guo et al. (2024), for example, indicated that negative mentorship experiences from masters can inhibit the formation of the craftsmanship spirit by diminishing students' professional identity.

While these studies provide valuable insights into the formation of the craftsmanship spirit, they have largely neglected the important role of perceived social support. This issue is particularly salient within the context of China's vocational education system, where students are often stereotyped as academically underperforming, face pervasive social prejudice, and suffer from inadequate social support (P. Xu, 2024).

Notably, the cultivation of a craftsmanship spirit necessitates not only institutional efforts but also broad-based societal support (Mu et al., 2023). Recognition and support from various sources—including family, school, enterprises, and society—not only bolster students' self-confidence but also create more opportunities for hands-on practice and professional development, thereby contributing positively to the formation of their craftsmanship spirit (Chen, 2018). Accordingly, this study proposes that perceived social support plays a crucial role in promoting the development of the craftsmanship spirit among higher vocational students, who represent a vital reserve of skilled talent.

Social support theory posits that when individuals perceive support from a variety of sources, they tend to experience enhanced psychological well-being (Acoba, 2024). According to social support theory, we propose that perceived social support contributes to the development of positive psychological outcomes among vocational college students, specifically their professional identity and identity recognition. We argue that these identities act as a crucial mediating mechanism through which perceived social support influences the cultivation of the craftsmanship spirit. On the one hand, higher vocational students, who often find themselves in marginalized or discriminated environments, can develop positive psychological attitudes upon receiving substantial social support. For instance, when they perceive understanding and encouragement from their families or receive help and support from teachers and peers, they are more likely to remain committed to their current field of study and prefer future careers aligned with their majors (H. Li, 2024). This fosters a stronger professional identity, motivating them to invest more energy, focus on enhancing their professional skills, actively innovate, and pursue technical excellence (M. Xu, 2024). On the other hand, this study also posits that identity recognition plays a critical role in the development of craftsmanship spirit among vocational college students. Especially in the context of their specific social roles, such as being a skilled talent or vocational student (M. Zhang & Yang, 2022). Identity recognition is the acceptance of one's professional role and identity. It differs from self-efficacy (belief in one's ability) by emphasizing a clear vocational path and long-term commitment (Liao et al., 2023). This makes it a key concept for our study, which examines how social support fosters students' deep acceptance of professional roles and group affiliations. This identity recognition can, in turn, effectively stimulate their passion for mastering professional skills and drive them toward excellence (Q. Li & Tang, 2023). Thus, we argue that social support triggers a dual psychological transformation: It solidifies students' commitment to their chosen field (professional identity) while reinforcing their acceptance of a broader social role as skilled artisans (identity recognition), both of which are crucial for cultivating the craftsmanship spirit.

In summary, grounded in social support theory, this study aims to investigate the relationship between perceived social support and the craftsmanship spirit among higher vocational students, as well as the mediating roles of professional identity and identity recognition in this process. The theoretical and practical contributions of this study are as follows. First, by exploring the relationship between perceived social support and the craftsmanship spirit, our research contributes to the existing literature on the antecedents of the craftsmanship spirit by addressing a previously underexplored factor—external social support. While prior studies have primarily focused on skilled workers in the workplace, emphasizing interpersonal dynamics or personality traits, they have largely overlooked the influence of perceived social support. This omission is particularly important in the context of higher vocational students, who often experience a lack of social support and societal inclusion (X. Lin et al., 2023). Second, by examining the parallel mediating roles of professional identity and identity recognition, this study advances beyond prior research that typically explored the effects of social support through singular cognitive or emotional pathways. It offers a more

integrative perspective by elucidating how perceived social support fosters the internalization of professional values (professional identity) and reinforces a sense of group belonging (identity recognition), thereby promoting the development of the craftsmanship spirit. While earlier studies have tended to frame these mechanisms through isolated lenses—such as emotional regulation, social exchange, or skill acquisition—this research incorporates both identity constructs into a unified theoretical model (see Figure 1). In doing so, it not only deepens the theoretical understanding of how the craftsmanship spirit is cultivated in vocational education but also yields practical implications for educational strategies aimed at nurturing it.

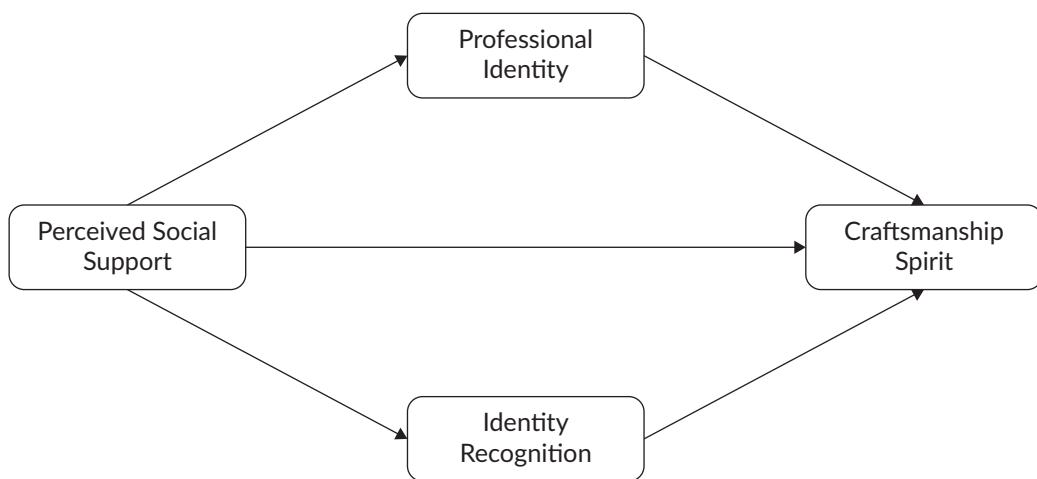


Figure 1. Theoretical model.

2. Theoretical Background and Hypotheses

2.1. Perceived Social Support and Craftsmanship Spirit

According to social support theory, support originating from family, educational institutions, workplaces, and broader societal structures is pivotal for an individual's psychological development and behavioral patterns (Cobb, 1976; Ding et al., 2024). Perceived social support refers to higher vocational students' subjective feelings and evaluations of the extent to which they are supported by others, including emotional experiences of being supported, understood, and respected (Zimet et al., 1988). When vocational college students perceive support and recognition from their social environment, they develop greater confidence in their professional roles, which in turn enhances their intrinsic motivation for learning and work. Moreover, Rautanen et al. (2021) suggest that higher levels of perceived social support are associated with increased individual proactivity. The craftsmanship spirit reflects the value orientation and behavioral tendencies that higher vocational students are expected to embody in their future professional lives (J. Zhou, 2022). It is typically manifested through positive traits such as dedication, pursuit of excellence, concentration, perseverance, and innovation (D. Zhu & Cao, 2025). More than a set of behaviors conducive to career advancement, it represents an intrinsic sense of mission driven by a high level of internal motivation (Liu et al., 2022). Empirical evidence also indicates that social support significantly influences individual work performance (AbuAlRub, 2004; Koh et al., 2018; Zeng et al., 2022) and innovative behavior (Doğru, 2018; G. Li et al., 2018; Xia et al., 2020). Concurrently, increased social support has been shown to enhance the

professional nursing standards of nurses (Kim & Ahn, 2022). The pursuit of work performance and professional excellence, along with proactive and innovative behaviors, represents the core tenets of the craftsmanship spirit. Therefore, we propose the following hypothesis:

Hypothesis 1: Perceived social support is positively associated with the craftsmanship spirit.

2.2. The Mediating Role of Professional Identity

Professional identity refers to the internal acceptance and endorsement by higher vocational students of the profession they are preparing to enter, which is then translated into external behavioral motivation (D. Xie, Li, & Yin, 2025). Interpersonal interaction and social support are critical influences on students' professional socialization (Yousofvand et al., 2024). On the one hand, emotional support from parents, teachers, classmates, and peers can enhance students' sense of security and self-confidence, thereby fostering more positive attitudes toward learning and development (D. Xie, Li, & Yin, 2025). Perceived support has also been shown to activate students' internal positive cognition and translate into constructive behavioral outcomes (Chong et al., 2018). On the other hand, school-enterprise cooperation—an increasingly adopted model in vocational education—integrates industry into student training, enabling them to acquire professional knowledge, practical skills, and access to internships or on-the-job training (Kong et al., 2023). Such engagement provides support from key social agents, helping students recognize the social value and career prospects of their profession, align personal values with professional demands, and strengthen their identification with and aspiration for future career roles (S. D. Brown & Lent, 2019). Furthermore, empirical research has demonstrated a positive relationship between perceived social support and professional identity, suggesting that a supportive environment plays a pivotal role in shaping students' career self-concept and long-term professional commitment (Huang et al., 2022). Generally, students with a strong professional identity tend to experience a greater sense of belonging to their chosen field, which motivates them to actively adapt and engage in learning to pursue their career goals. This not only helps them overcome psychological challenges such as academic burnout but also fosters intrinsic motivation for sustained participation in professional studies (L. Xu et al., 2023). Such motivation enhances their perseverance in the face of technical difficulties and stimulates innovation, thereby contributing positively to the cultivation of the craftsmanship spirit. Evidence from workplace studies further supports this link: employees with a strong professional identity are more likely to exhibit dedication to their work and invest time and effort in skill development (X. M. Zhang & Chang, 2025). Moreover, professional identity has been shown to positively influence learning engagement (D. Xie, Li, & Yin, 2025) and is significantly associated with the development of the craftsmanship spirit (X. Wang & Xu, 2021). Therefore, we propose the following hypothesis:

Hypothesis 2: Professional identity mediates the relationship between perceived social support and the craftsmanship spirit.

2.3. The Mediating Role of Identity Recognition

Identity recognition refers to individuals' understanding and articulation of their background, social status, educational experience, major occupation, and the various roles they assume in society (Tan & Nie, 2024). Social support theory posits that the support an individual receives from their social network serves as a

critical resource for managing stress and fostering a positive sense of identity (Jankowska-Tvedten & Wiium, 2023). Accordingly, an individual's identity recognition is significantly influenced by their level of perceived social support, which in turn enables them to maintain and enhance their self-evaluation when facing external challenges. On one hand, when students perceive recognition and support from their social networks, they tend to maintain confidence in their abilities and self-worth, facilitating the internalization and affirmation of a positive self-image. Empirical studies have demonstrated positive correlations between perceived social support and higher vocational students' self-efficacy (Liu et al., 2015) as well as self-affirmation (X. Lin & Cui, 2020). On the other hand, higher vocational students may be influenced by societal stereotypes and disparities in educational resources, career pathways, and institutional status, which can foster feelings of inferiority and a 'second-class' self-perception, potentially leading to identity crises (Tan & Nie, 2024). In this vulnerable context, social support becomes crucial. It helps students build a positive identity as 'skilled talents' by countering negative stereotypes. This enables them to internalize their value as high-quality professionals, thereby solidifying their identity recognition. Consistently, prior research has confirmed the constructive role of perceived social support in shaping positive self-concept among marginalized populations (Chen, 2024; Pratiwi & Mangunsong, 2020). Higher vocational students possess a dual identity as both students and apprentices of skilled talent, and their perception of this dual role significantly influences their engagement and performance in academic and skills training (Xiao et al., 2022). According to social support theory, social support not only directly influences individual mental health but can also enhance learning and work motivation by fostering "identity recognition" (Luo et al., 2024). As an important source of technical and skilled talents, vocational students are more likely to sustain active participation in learning and skill development during their studies if they perceive strong support from schools, families, and society, particularly through adequate affirmation and encouragement in skill growth and career orientation (K. Lin & Xue, 2024). This commitment is essential for achieving technical mastery and preserving a legacy of quality craftsmanship, intimately connected with the cultivation of the craftsmanship spirit. Although direct empirical evidence linking this specific form of identity recognition to the craftsmanship spirit is currently lacking, related research highlights its critical role in professional development—such as among teachers (Gu & Zheng, 2020)—and its capacity to stimulate proactive and exploratory behaviors in workplace settings (Ma et al., 2023). Therefore, we propose the following hypothesis:

Hypothesis 3: Identity recognition mediates the relationship between perceived social support and the craftsmanship spirit.

3. Research Methods

3.1. Participants and Procedures

Participants were recruited from three vocational colleges in Shenzhen, Guangdong Province, utilizing a random sampling method to minimize selection bias and potential confounding effects. The students were drawn from majors such as mechatronics technology, automobile inspection and repair, and software technology. These majors emphasize the cultivation of professional ethics and practical skills, which are closely aligned with the core values of a "craftsmanship spirit." Prior to the survey, approval was obtained from the administrators of the respective schools. Data collection involved three sets of questionnaires administered at different intervals, each four weeks apart. At the initial time-point (T1), a web link was distributed to 400 students who volunteered to participate. This link directed participants to a webpage

detailing the study's purpose and data collection procedures, ensuring anonymity and confidentiality. The survey included measures of perceived social support and demographic variables. After excluding incomplete responses and outliers, 382 valid questionnaires were retained, yielding a response rate of 95.5%. Four weeks later, at the second time-point (T2), the same 382 participants were invited to assess their professional identity and identity recognition, resulting in 360 valid responses and a response rate of 94.2%. At the third time-point (T3), participants were asked to evaluate their craftsmanship spirit, with 348 complete and matched responses collected, achieving a final response rate of 96.6%. The final sample comprised 155 males (44.5%) and 193 females (55.5%), with 156 first-year students (44.8%), 105 second-year students (30.2%), and 87 third-year students (25.0%).

3.2. Measures

3.2.1. Perceived Social Support Scale (PSSS)

We employed the Chinese version of the PSSS to assess perceived social support, which was originally developed by Zimet et al. (1988) and revised by Jiang (2001). The scale consists of 12 items and is scored on a 7-point Likert scale (from 1 = *very strongly disagree* to 7 = *very strongly agree*). An example item is: "My family can offer me tangible and concrete help." Higher scores indicate a higher level of perceived social support. In this study, the Cronbach's α coefficient for this scale was 0.81.

3.2.2. Professional Identity Scale

We employed the Chinese version of the Professional Identity Scale to assess professional identity, which was originally developed by R. Brown et al. (1986) and later translated by Lu et al. (2007). The scale consists of 10 items and is scored on a 5-point Likert scale (from 1 = *never* to 5 = *always*). An example item is: "This major allows you to utilize your strengths." Items 2, 3, 6, 7, and 10 are reverse-scored. Higher scores indicate a stronger professional identity. In this study, the Cronbach's α coefficient for this scale was 0.82.

3.2.3. Adolescent Identity Recognition Scale

We employed the Chinese version of the Adolescent Identity Recognition Scale to assess identity recognition, which was originally developed by Ochse and Plug (1986) and later translated by Y. Li and Lou (2009). The scale consists of 19 items and is scored on a 4-point Likert scale (from 1 = *very strongly disagree* to 4 = *very strongly agree*). An example item is: "I feel that my lifestyle suits me." Items 1, 2, 4, 8, 9, and 12 through 18 are reverse-scored. Higher scores indicate a stronger identity recognition. In this study, the Cronbach's α coefficient for this scale was 0.89.

3.2.4. Craftsmanship Spirit Scale

We used a scale to measure craftsmanship spirit that was adapted for higher vocational students based on the manufacturing employees' craftsmanship spirit scale developed by Y. Zhu et al. (2021). We adapted the craftsmanship spirit scale to better reflect the context of higher vocational students. For example, items referencing "work" were reframed to address "professional skills learning" or "career planning," aligning with students' current stage of development. While their direct work experience may be limited,

China's vocational education system emphasizes school-enterprise cooperation, providing extensive workplace-based learning through internships and on-the-job training. These opportunities allow students to develop a practical understanding of required skills and attitudes for their future careers, thus grounding their understanding of craftsmanship spirit in the workplace (Colley et al., 2003; Guo et al., 2024). The scale consists of 23 items and is scored on a 5-point Likert scale (from 1 = *never* to 5 = *always*). An example item is: "In my professional skills learning, I pay great attention to detail and strive for perfection." Higher scores indicate a higher level of craftsmanship spirit. In this study, the Cronbach's α coefficient for this scale was 0.91.

3.3. Data Analysis

Data were processed and analyzed using SPSS version 26.0, employing the PROCESS macro (Model 4) to test mediation effects. Hypotheses derived from the theoretical framework were tested to draw conclusions.

3.3.1. Discriminant Validity Test

To examine the discriminant validity among the study variables, a series of confirmatory factor analyses (CFAs) were conducted by Mplus 8.3. Before conducting the CFAs, we noted the large number of measurement items, which could potentially lead to poor model fit if all items were included directly. Furthermore, the primary focus of this study was on the discriminant validity between constructs rather than the inter-item correlations within each construct. Therefore, following the recommendation of Little et al. (2002), an item parceling strategy was employed. Specifically, for constructs measured with five or more items, we created parcels using a random assignment approach. The results of the CFAs are presented in Table 1. As shown, the proposed four-factor model demonstrated an excellent fit to the data, with all fit indices meeting or exceeding recommended academic standards ($\chi^2/df = 1.200$, CFI = 0.995, TLI = 0.994, RMSEA = 0.024, SRMR = 0.021). Moreover, this model provided a significantly better fit than all alternative models. These findings collectively indicate that the main constructs of this study possess strong discriminant validity.

Table 1. Results of CFAs (N = 348).

Measurement model	χ^2	df	χ^2/df	RMSEA	CFI	TLI	SRMR
1. Four-factor model (PSS, PI, IR, CS)	57.597	48	1.200	0.024	0.995	0.994	0.021
2. Three-factor model(PSS,PI+ IR,CS)	3518.843	1949	1.805	0.048	0.786	0.778	0.051
3. Two-factor model(PSS+PI+ IR,CS)	3546.128	1951	1.818	0.049	0.782	0.775	0.051
4. One-factor model(PSS+PI+ IR+CS)	3581.442	1952	1.835	0.049	0.777	0.770	0.051

Notes: PSS stands for "perceived social support"; PI for "professional identity," IR for "identity recognition," and CS for "craftsmanship spirit."

4. Results

4.1. Common Method Bias Test

Due to the reliance on self-reported data from participants, potential common method bias may affect the study results. We conducted a Harman's single-factor test using an unrotated principal component factor analysis of all variables to assess possible common method bias (Podsakoff et al., 2003). The results indicated

that there were 14 factors with eigenvalues greater than 1, and the first factor explained 9.30% of the total variance, which is less than 50%. Therefore, common method bias does not appear to be a significant issue in this study (H. Zhou & Long, 2004).

4.2. Descriptive Statistics and Correlation Analysis

Table 2 presents the correlations among the variables. Perceived social support, professional identity, identity recognition, and craftsmanship spirit were all found to be significantly correlated. Specifically, craftsmanship spirit was significantly and positively correlated with perceived social support ($r = 0.427, p < 0.01$), professional identity ($r = 0.549, p < 0.01$), and identity recognition ($r = 0.502, p < 0.01$), providing a preliminary basis for the subsequent mediation analysis.

Table 2. Means, standard deviations, and correlations among study variables ($N = 348$).

	M	SD	1	2	3	4	5	6	7	8
1. Gender	1.55	0.498	1							
2. Grade	1.80	0.813	0.016	1						
3. Registered residence	1.40	0.490	-0.042	0.010	1					
4. Only Child or Not	1.35	0.478	-0.020	-0.021	0.045	1				
5. Perceived Social Support	3.30	0.77	0.048	0.008	-0.055	-0.091	1			
6. Professional Identity	3.29	0.82	0.087	0.047	-0.033	-0.097	0.513**	1		
7. Identity Recognition	3.41	0.62	0.033	0.055	-0.078	-0.076	0.456**	0.591**	1	
8. Craftsmanship Spirit	3.26	0.75	0.040	0.023	-0.030	-0.071	0.427**	0.549**	0.502**	1

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

4.3. Testing the Hypotheses

Hypothesis 1 proposed that perceived social support is positively related to craftsmanship spirit. As shown in Table 3, the relationship between perceived social support and craftsmanship spirit was significant and positive ($\beta = 0.43, t = 7.45, p < 0.001$). Thus, hypothesis 1 was supported.

Hypothesis 2 proposed that professional identity mediates the relationship between perceived social support and craftsmanship spirit. The results in Table 3 indicate that perceived social support was positively related to professional identity ($\beta = 0.41, t = 5.63, p < 0.001$), and professional identity, in turn, was significantly and positively related to craftsmanship spirit ($\beta = 0.46, t = 9.91, p < 0.001$). After including the mediator, the direct effect of perceived social support on craftsmanship spirit remained significant ($\beta = 0.36, t = 8.12, p < 0.001$). This indicates that professional identity partially mediates the relationship between perceived social support and craftsmanship spirit. The indirect effect (0.19, 95% CI[0.15, 0.45]; see Table 4) accounted for 30.65% of the total effect. Therefore, hypothesis 2 was supported.

Hypothesis 3 proposed that identity recognition mediates the relationship between perceived social support and craftsmanship spirit. As shown in Table 3, perceived social support is positively related to identity recognition ($\beta = 0.56$, $t = 6.25$, $p < 0.001$), and identity recognition is significantly and positively associated with craftsmanship spirit ($\beta = 0.16$, $t = 4.40$, $p < 0.001$). This suggests that identity recognition partially mediates the relationship between perceived social support and craftsmanship spirit. The Bootstrap 95% confidence intervals for the indirect effect (0.08, 95% CI [0.05, 0.16]; see Table 4) and the total effect (0.62, 95% CI [0.52, 0.86]; see Table 4) did not contain zero. Therefore, hypothesis 3 was supported. The indirect effect accounted for 12.90% of the total effect. Overall, the two mediating pathways (professional identity and identity recognition) collectively accounted for approximately 43.55% of the total effect of perceived social support on craftsmanship spirit.

Table 3. Regression analysis results ($N = 348$).

Predictor variable	Craftsmanship spirit		Professional identity		Identity recognition		Craftsmanship spirit	
	β	t	β	t	β	t	β	t
Gender	0.01	-0.11	0.05	1.52	0.00	0.02	-0.02	-0.87
Grade	0.02	0.56	0.04	1.28	0.05	1.23	-0.01	-0.36
Perceived Social Support	0.43	7.45***	0.41	5.63***	0.56	6.25**	0.36	8.12***
Professional Identity							0.46	9.91***
Identity Recognition							0.16	4.40***
R	0.83		0.82		0.66		0.89	
R ²	0.68		0.67		0.43		0.79	
F	47.92		57.53		87.59		58.54	

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4. Bootstrap analysis for the significance of mediation effects.

	Effect	BootSE	BootLLCI	BootULCI
Total effect	0.62	0.03	0.52	0.86
Direct effect	0.35	0.04	0.26	0.43
PSS-PI-CS	0.19	0.04	0.15	0.45
PSS-IR-CS	0.08	0.03	0.05	0.16

Notes: PSS stands for “perceived social support”; PI for “professional identity,” IR for “identity recognition,” and CS for “craftsmanship spirit.”

5. Discussion

Grounded in social support theory, this study examined how perceived social support influences the craftsmanship spirit of prospective skilled talents in vocational education, with professional identity and identity recognition serving as mediators. Our findings demonstrate that when students perceive support from family, schools, enterprises, and society, they become more committed to their chosen career path. This commitment enhances their confidence in future career development and significantly strengthens their professional identity. In turn, this heightened professional identity motivates students to invest greater effort in acquiring professional skills and engaging in innovative practices, thereby fostering the development of a craftsmanship spirit. Furthermore, perceived social support reinforces students’

recognition of their social role as skilled professionals, enhancing their identity recognition. This sense of acceptance and affirmation fuels their passion and sense of mission for mastering skills, driving them to pursue excellence and further promote a craftsmanship spirit. Thus, professional identity and identity recognition play key mediating roles by channeling the positive impact of perceived social support into the cultivation of craftsmanship spirit. Theoretical and practical implications of these findings are discussed in detail.

5.1. Theoretical Implications

First, this study contributes to the literature by examining vocational students and investigating the relationship between perceived social support and craftsmanship spirit. This offers a new perspective on the antecedents of craftsmanship spirit and extends its research context from the workplace to vocational education. Previous research has primarily focused on the individual characteristics and management factors of frontline skilled workers (Y. Zhu et al., 2021) or the impact of individual traits, skills training, and mentorship on craftsmanship spirit among vocational students, with less attention paid to the critical role of professional identity (Y. Li et al., 2024). By focusing on prospective skilled talents who have not yet entered the workforce, this study broadens the applicability of craftsmanship spirit research. Furthermore, while many prior studies, often based on self-efficacy or psychological capital theories, have highlighted the effects of emotional support and skills training on vocational students (Sauli et al., 2022), this study, grounded in social support theory, specifically emphasizes the positive influence of the external supportive environment, thereby enriching the understanding of external factors that shape craftsmanship spirit.

Second, this study further explores the mediating role of professional identity in the relationship between perceived social support and craftsmanship spirit. This not only provides a new theoretical lens for understanding how social support is converted into students' intrinsic motivation but also enriches the understanding of the mechanisms underlying a craftsmanship spirit. While existing literature widely acknowledges the positive effects of social support on professional development, such as improving job satisfaction, reducing burnout, and indirectly influencing career choices and commitment (A. Zhou et al., 2024), little is known about how social support internally drives individuals' commitment to excellence, such as the development of craftsmanship spirit. This study fills this gap by demonstrating that when vocational students perceive support from diverse sources (family, school, and enterprises), their identification with their profession and future career is significantly enhanced. This, in turn, stimulates their intrinsic motivation to master professional skills, ultimately promoting the formation of a craftsmanship spirit. This finding is consistent with research showing a positive link between social support and professional identity, such as D. Xie, Li, and Yin (2025), who found that social support indirectly enhances professional identity through psychological adjustment and school belonging. By leveraging social support theory, our study uncovers the identity-based mechanisms (including professional and identity recognition) in the formation of craftsmanship spirit, offering a new perspective on how social support is translated into this valued trait. The selection of professional identity and identity recognition as mediating variables is rooted in a deep insight into the unique characteristics of higher vocational students: they need not only to identify with their specific chosen profession (professional identity) but also to affirm their social identity as skilled talents (identity recognition) to counteract societal prejudices. This approach differs from self-efficacy, which primarily focuses on belief in one's capabilities, or mere vocational commitment, which is often a preference for a career choice. Although professional identity and identity recognition are conceptually related, this

study's empirical data (e.g., an acceptable correlation coefficient between them in Table 2, well below the discriminant validity threshold) preliminarily support their empirical distinctiveness as independent mediating pathways.

Finally, this study confirms that group identity acts as a mediator in the cultivation of the craftsmanship spirit. This finding advances our understanding by highlighting a key group-related psychological mechanism, identity recognition, that has been largely overlooked in prior research. Vocational students are often perceived as a marginalized group, facing identity crises related to academic performance and employment prospects. Some scholars have argued that, in the absence of a strong sense of group-based identity recognition, efforts to cultivate craftsmanship spirit in vocational education may remain superficial and lack lasting impact (Sugimura et al., 2025). Empirical evidence also suggests that a clear sense of professional-based group identity encourages students to actively engage in professional learning and innovation (Suyitno et al., 2023). Building on social support theory, this study systematically examines how multi-source social support enhances the group identity of vocational students, thereby stimulating their drive for skill mastery and excellence. This not only responds to the assertion by Sugimura et al. (2025, p. 455) that "the sense of feeling that one knows where one is headed and could thus facilitate students' future career plans," but also provides a new paradigm from a social support perspective for addressing the issue of low group identity among vocational students.

5.2. Practical Implications

First, our findings underscore the significant impact of perceived social support on the development of craftsmanship spirit among vocational students. It is therefore crucial to enhance students' perception of support, particularly from family, school, enterprises, and the broader society. Specifically, schools can establish a collaborative family-school-enterprise educational mechanism to provide students with rich support resources. For instance, inviting parents to career experience days or mock job fairs can improve students' overall perception of social support and sense of identity. Regularly inviting national skill competition winners, master craftsmen, and alumni to share their journeys can allow students to feel social respect and career anticipation through authentic stories. These initiatives can make students tangibly feel external care and support, strengthening their confidence and fostering the professional identity and group belonging that are foundational to craftsmanship spirit.

Second, professional identity serves as a critical bridge between perceived social support and craftsmanship spirit. Therefore, schools and families should implement measures to bolster students' professional identity. Schools can strengthen career planning education to help students clarify their career goals and development paths. Systematic psychological counseling and career advising can address students' uncertainties and build their professional confidence. Furthermore, creating more practical career experience opportunities, such as regular internships and apprenticeships in manufacturing enterprises and workshops, is essential. Requiring students to engage in frontline operations and reflect through interviews and mentorship allows them to gain a realistic understanding of the workplace, thereby enhancing their identification with their professional roles. When students develop a clear and genuine passion for their profession, their intrinsic motivation to learn and achieve will be significantly enhanced, setting them on a path where professional identity fuels the cultivation of a craftsmanship spirit.

Finally, the group identity of vocational students is another vital factor in internalizing a craftsmanship spirit. From a group belonging perspective, schools and society should cultivate an environment that respects skilled labor and esteems craftsmanship, thereby enhancing students' sense of honor and belonging as members of the skilled talent community. Schools can form professional clubs or interest groups to encourage peer learning and support networks. Regular campus events and award ceremonies themed around "craftsmanship spirit" can establish role models of skill-based success, reinforcing group pride. To effectively counteract societal prejudices and prevent students from feeling isolated, the following strategies are crucial: Firstly, schools should actively organize and encourage students to participate in various national and provincial skill competitions, vigorously promoting their achievements in such contests. This leverages authoritative social recognition to enhance both students' and society's perception of skilled talents. Secondly, establishing extensive school-enterprise cooperation platforms will enable students to engage in projects within real work environments, producing valuable outcomes. Through corporate feedback and compensation incentives, students can genuinely experience the social value of their skills and their contributions as skilled professionals. Thirdly, schools can regularly host "vocational skills open days" or "craftsmanship spirit into community" events, inviting the public and primary/secondary school students to experience the appeal of vocational skills and showcase the professional demeanor of higher vocational students. This promotes societal understanding and respect for vocational education, gradually transforming negative stereotypes. Through these internally strengthening and externally integrating strategies, the aim is for students to not only internalize a sense of honor but also to confidently integrate into the broader society, becoming socially recognized skilled contributors, rather than merely confining their identity recognition within small, isolated groups. Social practice and community service can also help students experience the societal respect afforded to skilled professionals. When vocational students develop a deep sense of pride in their professional group, they become more engaged and motivated to pursue excellence, fostering a collective drive towards craftsmanship.

5.3. Limitations and Future Research

Although this study explored the impact of perceived social support on the craftsmanship spirit of vocational students and analyzed the mediating roles of professional and identity recognition, several limitations warrant further investigation.

First, this study focused primarily on vocational students. Future research could extend to other educational levels or professional groups, particularly through comparative studies between vocational and undergraduate students. This would allow for a more systematic examination of the proposed mediation model and its generalizability versus specificity across different educational contexts. While our sample included students from various skill-oriented and practical majors within higher vocational education, which inherently emphasize professional ethics and hands-on competence aligned with craftsmanship, future studies could explore the applicability of these mechanisms in broader or non-skill-specific vocational programs. Additionally, cross-cultural research could provide a more comprehensive perspective, as the influence of social support on craftsmanship spirit may vary across different regions and cultures. Moreover, although this study has adapted the craftsmanship spirit scale, it is important to acknowledge that because our participants are students who have not yet fully entered the workforce, their understanding of craftsmanship spirit may, to some extent, be influenced by their educational background and idealistic perceptions, potentially differing from how it manifests in actual work performance. Future research could

consider combining behavioral observations or longer-term longitudinal tracking to more comprehensively assess the practical development of craftsmanship spirit.

Second, while this study employed a multi-wave survey design to establish temporal precedence and mitigate common method bias (H. Xu, 2024), it is important to note that this design, without advanced causal modeling (e.g., cross-lagged panel analysis or experimental manipulation), does not definitively establish causality. Future research could employ longitudinal or experimental designs to explore the long-term effects of social support on the development of craftsmanship spirit and to further validate the mediating roles of professional and identity recognition. Furthermore, to address potential omitted variable bias and gain a more comprehensive understanding, future studies could incorporate and control for other relevant variables not examined here, such as participants' prior work experience, family socioeconomic status, or specific characteristics of vocational programs (e.g., depth of industry-education integration, intensity of apprenticeship training; see R. Wang, 2023; W. Xie, Wu, & Xiang, 2025; C. Q. Xu & Li, 2025). These factors might influence both social support perception and craftsmanship spirit development.

Finally, while this study examined the overall effect of social support, it did not differentiate between various types of support (e.g., emotional, informational, tangible). Future research could build on this foundation by distinguishing between different forms of support to explore their specific mechanisms of influence on students' craftsmanship spirit in various contexts.

In summary, while this study provides theoretical analysis and empirical support for cultivating "craftsmanship spirit" in vocational students, many questions remain. Future research can address these gaps from multiple perspectives and levels to provide a more comprehensive theoretical basis and practical guidance for fostering a craftsmanship spirit.

6. Conclusion

This study, grounded in social support theory, explores the intricate relationship between perceived social support and the development of craftsmanship spirit among vocational students, emphasizing the mediating roles of professional identity and identity recognition. Our findings underscore that when students perceive robust support from diverse sources—such as family, educational institutions, peers, and the broader society—this multifaceted support significantly enhances their professional identity and identity recognition. These enhancements, in turn, foster the cultivation of a craftsmanship spirit. This research illuminates the pivotal role of external social support in nurturing craftsmanship spirit and elucidates the mediating mechanisms of professional identity and identity recognition within this process. The insights gained provide a comprehensive theoretical framework for fostering craftsmanship spirit within vocational education. Furthermore, they offer practical recommendations for enhancing social support systems to effectively promote craftsmanship spirit, thereby contributing to the broader discourse on vocational education and social inclusion.

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Conflict of Interests

The authors declare no conflict of interests.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

LLMs Disclosure

During the preparation of this work, the authors used ChatGPT 4.0 to improve the language and readability of the manuscript. The tool was used for grammar correction, spelling checks, and rephrasing sentences to enhance clarity. It is important to state that the core academic content, including the research ideas, data analysis, and conclusions, was generated solely by the human authors. The authors reviewed and edited all AI-generated text to ensure its accuracy and take full responsibility for the final content of the manuscript.

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