

RESEARCH ARTICLE

The Influence of Professional Identity of College Teachers in Hainan Province on Job Satisfaction: The Mediating Role of Job Engagement

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ABSTRACT

This study used a questionnaire survey method to investigate the relationship between teacher's professional identity and job satisfaction, the impact of teacher's professional identity on job engagement, and the mediating role of job engagement between teacher's professional identity and job satisfaction among 404 teachers from the three universities in Hainan Province. The research results showed that the professional identity of university teachers in Hainan Province significantly positive impacts job satisfaction. The work engagement of university teachers in Hainan Province, China, significantly positive impacts job satisfaction. The work engagement of university teachers in Hainan Province partially mediates the impact of teacher's professional identity on job satisfaction.

Keywords: Hainan Province; University teachers; Teacher's professional identity; Job satisfaction; Work engagement

1. Introduction

As a talent training base, university should focus on improving teacher's teaching ability and strengthening their administrative and scientific research capability^[1]. This is a requirement for the development of the times and for building a strong technological country. University teachers have been under heavy work pressure for a long time, which has seriously affected their physical and mental health and can also cause negative and dissatisfied emotions towards their work, affecting students' learning environment, too^[2]. This has become a hidden trouble for the development of higher education. Nowadays, most teachers has low satisfaction and only regard teaching profession as a means of livelihood. They lose enthusiasm for their work and lack initiative and motivation. As a group shouldering the heavy responsibility of rejuvenating the country through science and education, improving the job satisfaction of university teachers is an important direction and driving force to reforming university management^{[3][4]}. Hainan Province, as the youngest province in China, has a certain degree of imbalance in the allocation of educational resources, which has affected the job satisfaction of teachers to some extent. Therefore, this study takes university teachers in Hainan Province as the research subjects.

In previous studies, the research on the three variables of professional identity, job satisfaction, and job engagement in education mostly focused on exploring the relationship between a single or two variables.

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However, there were relatively few studies exploring the relationship between the three variables, and most studies focused on teachers from kindergarten, primary and secondary school, and special education school, while fewer studies focused on university teachers [8][9][10]. There has yet to be an exploration of the relationship between professional identity, job engagement, and job satisfaction among university teachers as participants. Therefore, this study take university teachers as research objects to explore the mediating role of work engagement in the relationship between teacher's professional identity and job satisfaction in order to provide valuable theoretical and practical implications for the job satisfaction of university teachers in Hainan Province, China, and to provide some reference for future related research.

Teachers' professional identity is an important factor in determining their work engagement. Positive professional identity can promote teachers to teach more effective and interact to students, increasing their work engagement. Employees with high work engagement tend to be emotionally charged, energetic, full of challenging spirit, and enthusiastic about their work, resulting in satisfactory work outcomes and job satisfaction^[9]. The improvement of job satisfaction enable teachers to have a positive work state, which is beneficial for students' learning and growth, thereby improving the quality of basic teaching^[11]. Overall, previous studies mostly focused on exploring the pairwise relationships between occupational identity, job engagement, and job satisfaction [8][9][10]. There is relatively little research exploring the relationship between the three variables simultaneously. Therefore, the study on the relationship between teachers' professional identity and job satisfaction using input as a mediating variable has a certain innovative significance. In summary, this study take university teachers as research subjects to explore the mediating effect of work engagement on the relationship between teachers' professional identity and job satisfaction. This study is innovative in terms of variables and model.

2. Theoretical Overview and Research Construction

2.1. Teacher's professional identity and job satisfaction

Teacher's professional identity is a subjective psychological feeling proposed by Beijaard et al. regarding teachers' positive perception and evaluation of various aspects of the teaching profession. Wei Shuhua et al. divided teacher's professional identity into four dimensions: role values, professional behavior tendency, professional values, and professional sense of belonging. The four dimensions can perceive the comprehensive feelings of positive experiences, effective cognition, and behavioral tendency teachers internalize in their profession and work. Research has shown that a teacher's professional identity is a role state of personal experience and an intrinsic motivational factor in career development. Improving job satisfaction enable teachers to have a positive work state, which is beneficial for students' learning and thus enhances the quality of basic teaching^[11].

Scholars have found that teachers with high professional identity have intrinsic motivation mechanisms, which can effectively integrate their career with self-worth. Their satisfaction, self-awareness, initiative, and happiness in their work will also be enhanced. Teachers with low professional identity may experience reduced job satisfaction and high work pressure [16][17]. In the study of teachers' professional identity, professional identity positively impacts job satisfaction. The stronger teachers' professional identity in their work, the higher the job satisfaction level^[18]. The teacher's professional identity also reflects the basic attitude of teachers towards their role and the value and significance of their work. The higher the job satisfaction, happiness, and sense of achievement, the more professional they are. Young teachers have a high sense of identification with the teaching profession and a high level of satisfaction with their teaching work. The predictive effect of teachers' professional identity on job satisfaction is significantly positive correlated [3][7]. Therefore, based on above analysis, this study proposes a hypothesis:

H1: The professional identity of university teachers in Hainan Province significantly positive impacts job satisfaction.

2.2. Teacher's Professional Identity and Work Engagement

Kahn (1990) was the first scholar to propose the definition of job involvement, in which he defined as organizational members controlling themselves to align themselves with their job roles. Based on Kahn's research, some researchers believed that work engagement is a positive and complete state of integration for individuals in their work. It is a perfect link between work, individual traits, and job performance and an important way to weave competitive advantages. Extending to the field of teaching, teacher's work engagement refers to the proactive attitude and enthusiastic investment of teachers in their work, which affects the professional improvement and quality of life of teachers, as well as the learning environment and teaching quality for students^[20]. Work engagement is an important work motivation that one person can feel, and it includes three dimensions: vitality, dedication, and focus^[21].

How can work engagement be improved? Based on the Job Demand-Resource (JD-R) model, Demerouti (2001) proposed the Job Demand Resource model, which states that when employees have abundant job resources to achieve development goals, their driving processes and intrinsic motivation can be stimulated, thereby improving their work performance and achieving positive work outcomes. Work resources have a positive impact and can promote work engagement. They have an intrinsic motivating effect, which can encourage employees' growth and learning in their careers; positive feedback can promote employees' autonomy^[22]. The autonomy in work resources, support and encouragement from leaders and colleagues, and career development are beneficial for enhancing professional recognition^[23]. From above viewpoint, it can be seen that professional identity, as an intrinsic driving force of job qualifications, enhances the achievement of job requirements and goals. Empirical research has confirmed that balancing job requirements and resources can enhance employees' positive state and physical health, increase their work engagement, and improve production efficiency.

Professional identity can bring individuals a positive inner experience, which is the acceptance and liking of the profession they are engaged in from the bottom of their hearts. This sense of success is subjectively an internal motivation and can be maintained in their work^[24]. A study has found that reasonable role classification and clear role cognition are important drivers of individual work engagement. The impact of teacher's professional identity on job engagement has been demonstrated in fields such as education and police^{[24][25]}. Hypothesis 2 is proposed.

H2: The professional identity of university teachers in Hainan Province significantly positive impacts their work engagement.

2.3. Work engagement and job satisfaction

According to existing research, employees with high job engagement are more motivated. They can appreciate the value and meaning of work, improving their job satisfaction. When individuals demonstrate high work engagement, they will feel the vitality of their work, a willingness to contribute, and a state of dedication to their work. This will lead to psychological satisfaction in their work, resulted in a positive psychological state and increased work productivity^{[26][27]}. Individuals with high work engagement are emotionally full of energetic, enthusiastic about their work, and willing to take challenges, which can lead to satisfactory work results and increased job satisfaction^[28]. The positive aspect of work engagement is the emotional experience of work, the positive aspect of job satisfaction is the cognitive evaluation of work, and positive work engagement promotes the evaluation of job satisfaction.^[29] When researching medical personnel, it was found that when they are highly engaged in their work, they are more willing to contribute

and have a sense of satisfaction. They are also more likely to obtain psychological satisfaction, improving job satisfaction. Compared with members of organizations with low work engagement, members of organizations with high work engagement have higher job satisfaction [30]. Studies have shown that job engagement has a significant positive predictive effect on job satisfaction. There is also a significant positive impact between job satisfaction and job engagement, increasing with job satisfaction [31].

Research on job satisfaction based on job engagement has been empirically studied in multiple fields. This study also speculates that job engagement significantly impacts job satisfaction in universities. Hypothesis 3 is proposed.

H3: The work engagement of university teachers in Hainan Province significantly positive impacts job satisfaction.

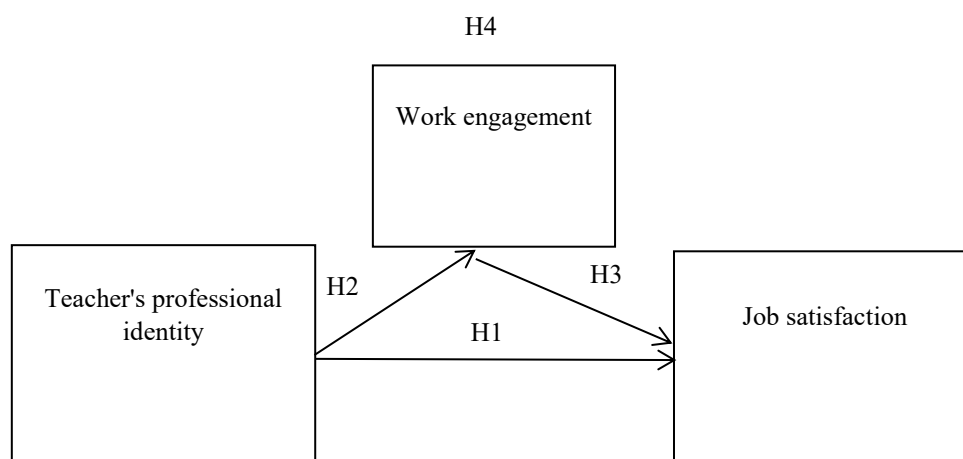
2.4. The mediating role of work engagement

Scholars have studied on special education teachers and shown that their sense of professional identity and job satisfaction have a significant positive prediction. The higher their sense of professional identity, the stronger their job satisfaction and happiness [17]. The study of investment in medical cooperation work found that occupational identity positively predicts job investment, and the higher the occupational identity, the higher the job investment [32]. There is a moderate positive correlation between job engagement and job satisfaction, with higher levels indicating higher job satisfaction [33]. In the study of young university teachers, work engagement partially mediates between teachers' professional identity and psychological capital. The study on the impact of teachers' perceived organizational support on job satisfaction found that job engagement plays a partly mediating role. When studying the group of kindergarten teachers, it was found that work engagement plays a mediating role between their work-family and job satisfaction [9][11][33].

Research has shown that when study based on Job Demand-Resource model theory, it is found that job autonomy, support and encouragement from leaders and colleagues, and career development in job resources are beneficial for enhancing job identity. A significant positive correlation exists between work resources' vitality, dedication, focus dimensions, and engagement. When teachers have abundant work resources, their work becomes more dynamic and dedicated [34]. Employees with high work engagement exhibit high levels of emotional fulfillment, energy, a spirit of challenge, and enthusiasm for their work, resulted in improved job satisfaction. Overall, job engagement may mediate between teachers' professional identity and job satisfaction.

Based on above analysis, the mediating effect of job engagement has been confirmed in many studies, but more research is needed on the mediating effect of teacher's professional identity and job satisfaction. This study aims to supplement and verify relevant research in education. Hypothesis 4 is proposed.

H4: The work engagement of university teachers in Hainan Province mediates between professional identity and job satisfaction.



(4) Practical significance

High levels of job satisfaction can encourage employees to have positive psychological feelings and experiences towards their work and to invest enthusiasm fully into their work, indicating that job satisfaction has strong practical significance in improving individual happiness^[35]. Improving teacher’s job satisfaction is also necessary for maintaining the teaching staff’s stability^[36]. This article will explore the impact of teachers' professional identity on their work engagement to promote the improvement of teachers' job satisfaction. In practical significance 3, it can make university realize the importance of improving teacher’s job satisfaction, and by adopting some incentive mechanisms or reward and punishment measures, starting from enhancing individual happiness, teachers can be psychologically willing to engage in more positive work states, thereby improving teacher job satisfaction, in order to promote the creation of a good cultural atmosphere of high investment and high happiness in universities in Hainan Province, China.

3. Research Design

3.1. Research sample

Since the establishment of Hainan Province in 1988, with the strong support of reform and the opening up of the government, higher education in Hainan Province has developed rapidly and gradually embarked on a stable development path^[37]. Under the seven scenarios of the "Belt and Road," Hainan has been approved by the national policy to build a pilot trade zone and a characteristic free trade port "the Belt and Road," which strongly encourages people to enter the "three strategies" and the number of senior teachers from all over the country to Hainan has increased significantly ^[38]. Therefore, this study selected Hainan Province as the research area and selected three subjects from universities in Hainan Province.

The essence of the questionnaire survey method is an empirical research approach. From a macro perspective, it employs quantitative methods and relies on objective verification techniques to explain and understand social phenomena. This method not only has advantages such as being time-saving, labor-saving, and economical but can also collect a large amount of research material in a short time. The survey process uses an anonymous format, with researchers and subjects no need to interact, thereby ensuring the authenticity and validity of the data. This study mainly uses convenience sampling to select from universities in Haikou in the northern part of Hainan Island, Danzhou in the northwest of Hainan Island, and Sanya in the southern part of Hainan Island. These universities are national key universities, general vocational colleges. The full-time teachers from these universities are the research objects, and the selected research objects covered universities in different regions and

levels of the province. The three universities run through the entire province of Hainan. The number of questions in this research scale is 40, and total 404 valid questionnaires were collected.

Table 1. Summary Table of Descriptive Statistics of Background Variables of College Teachers (N=404).

Teacher's Basic Information		Sample	Proportion%
Gender	male	183	45.3
	female	221	54.7
title	assistant	129	31.9
	lecturer	170	42.1
	associate professor	76	18.8
	professor	29	7.2
Teaching experience	Less than 5 years	144	35.6
	6-15 years	136	33.7
	16-25 years	77	19.1
	Over 26 years	47	11.6

3.2. Variable measurement

The independent variable teacher's professional identity scale selected from the "Teacher's Professional Identity Test Scale" developed by Wei Shuhua, which consists of 18 items and includes four dimensions: role values, professional behavior tendency, professional values, and professional belonging. Zeng Xiaojuan and Liu Chun (2015) developed the dependent variable job satisfaction scale to create the "College Teacher's Job Satisfaction Questionnaire", which consists of 7 items and includes two dimensions: personal job satisfaction and organizational job satisfaction. The mediator variable work engagement scale adopts the scale introduced by Zhang Yiwen after translation. The scale consists of 15 items and includes three dimensions: vitality, dedication, and focus.

The background variables of this study include gender, professional title, and teaching experience of the participants. The types of schools are one national key undergraduate institution, one general vocational college, and one private higher vocational university. The dependent and independent variables were evaluated using the Likert 5-point scoring system, while the mediator variable was evaluated using the Likert 7-point scoring system. Because the scales study the strength and weakness of details differently, the grading systems used vary accordingly. The Teacher's Professional Identity and Job Satisfaction Questionnaire can cover the attitudes of most respondents and also capture the differences among them, hence a 5-point scale is adopted. Work engagement needs to reflect the attitudinal differences of the respondents and to deeply understand their perspectives, therefore a 7-point scale is used. SPSS software was used for data statistical analysis, and the analysis methods used were project analysis, exploratory factor analysis, reliability analysis, validity analysis, descriptive statistics, difference analysis, correlation analysis, and regression analysis.

4. Research results

4.1. Common method deviation check

This study used Harman's one-way test to test for common method bias. Confirmatory factor analysis was conducted on occupational identity, job satisfaction, and engagement. The overall analysis of the job engagement variable according to the three dimensions of vitality, risk, and focus showed that ($\chi^2/df=2.64$, RMSEA=0.07, SRMR=0.06, CFI=0.97, TLI=0.95), indicating good discriminant validity. Under the

condition of no factor rotation, the maximum factor explained 32.11% of the total variation, below the critical value of 40%, indicating the possibility of common method bias is very small^[39].

4.2. Analysis of the Current Status of Variables

Through descriptive statistical analysis of various variables, it was found that the dimensions of teacher's professional identity ranged from 4.22 to 4.41; the values of various dimensions of work engagement ranged from 3.99 to 4.12; the dimensions of job satisfaction ranged from 3.80 to 3.82. The scale adopts a Likert self-assessment 5-point scoring system, so the medium critical point is 3.0. According to the data, teachers' professional identity and work engagement belong to the high group and are at a relatively high level. Job satisfaction is at the medium level, and there is still room for further improvement, as shown in **Table 2**.

Table 2. Analysis Table of Professional Identity, Work Engagement, and Job Satisfaction of College Teachers (N=404).

Variable	Structural surface	<i>M</i>	<i>SD</i>
Teacher's professional identity	Character values	4.32	0.59
	Occupational, behavioral tendency	4.41	0.60
	Professional values	4.38	0.65
	Sense of professional belonging	4.22	0.70
	Overall sense of professional identity among teachers	4.34	0.53
Work engagement	Vitality	3.99	0.69
	Dedication	4.12	0.68
	Absorbed	4.03	0.70
Job satisfaction	Overall work engagement	3.81	0.84
	Personal evaluation satisfaction	3.82	0.87
	Organizational evaluation satisfaction	3.80	0.90
	Overall job satisfaction	4.04	0.63

4.3. Reliability and validity testing of measurement questionnaire

4.3.1 Reliability

This study used Cronbach's alpha coefficient to measure the reliability of the questionnaire. After testing, the four dimensions and overall values of teachers' professional identity in this study as follows: the Cronbach's alpha value for the role values dimension was 0.863, the Cronbach's alpha value for the occupational behavior tendency dimension was 0.844, the Cronbach's alpha value for the occupational values dimension was 0.790, the Cronbach's alpha value for the occupational belonging dimension was 0.762, and the overall Cronbach's alpha value was 0.928. The values of the three dimensions of work engagement and the overall value as follows: the Cronbach's alpha value for the vitality dimension is 0.862, the Cronbach's alpha value for the dedication dimension is 0.839, the Cronbach's alpha value for the focus dimension is 0.855, and the overall Cronbach's alpha value is 0.936. The two dimensions of job satisfaction and the overall value are as follows: personal evaluation satisfaction dimension Cronbach's alpha value of 0.823, organizational evaluation satisfaction dimension Cronbach's alpha value of 0.807, and overall Cronbach's alpha value of 0.893. The Cronbach's alpha values for all dimensions are greater than the standard value of 0.70, indicating that all three scales have good reliability in this study

4.3.2. Validity

Through exploratory factor analysis of three variables, it was found that the KMO value of the Teacher’s Professional Identity Scale was .850, and Bartlett's sphericity test reached a significant level ($p < .001$). The data analysis results showed that the eigenvalues of each scale dimension ranged from 2.519 to 3.705, with eigenvalues all greater than 1, and the cumulative explained variance was 74.850%. The KMO value of the Work Engagement Scale is .870, and Bartlett's sphericity test reaches a significant level ($p < .001$). The data analysis results show that the eigenvalues of each dimension of the scale range from 3.314 to 5.043, and all eigenvalues are greater than 1. The cumulative explained variance value is 73.198. The KMO value of the job satisfaction scale is as follows: .767, and Bartlett's sphericity test reaches a significant level ($p < .001$). The data analysis results show that the eigenvalues of each dimension of the scale range from 2.155 to 2.219, and all eigenvalues are greater than 1, with a cumulative explained variance of 72.895%. The KMO values of the above three variables all meet the judgment criteria, and Bartlett's sphericity reaches a significant level, indicating that all three scales have good sampling appropriateness and validity.

4.3.3. Related analysis

This study used Pearson correlation analysis to analyze the correlation between various dimensions of teacher’s professional identity and dimensions of work engagement and job satisfaction. The correlation analysis table found that the overall scale of teacher professional identity positively correlated with the overall work engagement scale on average ($r = 0.411, p < 0.01$). There is a positive correlation between the overall scale of teacher’s professional identity and the overall scale of job satisfaction ($r = 0.523, p < 0.01$); There is a positive correlation between the overall scale of job engagement and the overall scale of job satisfaction on average ($r = 0.471, p < 0.01$). The correlation coefficients analyzed by the three scales range from 0.258 to 0.411, indicating moderate correlation and no collinearity issue. The specific data is shown in **Table 3**.

Table 3. Correlation analysis of various variables.

Variable	<i>M</i>	<i>SD</i>	Teacher's professional identity	Work engagement engagement	Job satisfaction satisfactionsatisfaction
Teacher's professional identity	4.34	0.533	1		
Work engagement	4.04	0.630	0.411***	1	
Job satisfaction	3.81	0.838	0.258***	0.349***	1

Note: *** $p < 0.001$.

(5) Regression Analysis

According to the correlation analysis, there is a significant positive correlation between the three variables of teacher’s professional identity, job involvement, and job satisfaction, which meets the prerequisite conditions for conducting a mediation effect test. Therefore, this study will verify the proposed hypothesis through regression analysis to test whether university teachers' job involvement in Hainan Province mediates the relationship between teacher’s professional identity and job satisfaction.

Based on the results of differential analysis, this study controlled three background variables: gender, professional title, and teaching experience (with "male" as the reference group for gender, "lecturer" as the reference group for professional title, and "6-15 years of teaching experience" as the reference group), and conducted regression analysis on the variables. The specific analysis data are shown in Table 4.

Table 4. Intermediary * regression analysis table.

variable	Model One	Model 2	Model Three	Model Four
Background variables	Teacher's professional identity	Job satisfaction	Work engagement	Teacher job satisfaction
female	0.110	-0.157**	-0.071	-0.138**
assistant	0.095	0.148	0.016	0.143
Associate Professor*	0.172	0.076	0.066	0.057
professor	-0.0037**	-0.021	-0.028	-0.013
5 years to*	-0.045	-0.064	0.007	-0.066
16-25 years	-0.172**	0.102	0.004	0.101
Over 26 years	-0.086	0.054	-0.044	0.066
0.066				
Self-transformation*				
Teacher's sense of professional identity		0.276***	0.405**	0.163**
Intermediary * Quantity				
Work engagement		0.341***		0.277***
F value	4.375***	6.176***	11.026***	9.226***
R ²	0.072	0.111	0.183	0.174
Adj R ²	0.055	0.093	0.166	0.155

Note 1: ** $p < 0.01$ *** $p < 0.001$

Note 2: "*" in "*" refers to the reference group, "6-15 years of teaching experience" refers to the reference group, and "lecturer" in the title refers to the reference group.

According to the mediation effect regression analysis in Table 4, it can be seen that: Model 1, after controlling for gender, professional title, and teaching experience of * university teachers, uses regression analysis to test the predictive effect of background variables on teachers' professional identity. According to the data analysis results, the R^2 value is 0.072, indicating that the explanatory power of different genders, professional titles, and teaching experience of university teachers in Hainan Province on teachers' professional identity is 7.2%. Therefore, this study found significant differences in teacher professional identity among university teachers in Hainan Province based on different background variables (gender, professional title, teaching experience).

Model 2, after controlling for gender, professional title, and teaching experience of * university teachers, regression analysis was used to test the predictive effect of background variables on teacher professional identity. Teacher's professional identity ($\beta=0.276, p<2.001$) had a significant positive predictive effect on job satisfaction, indicating that the higher the teacher's professional identity, the higher the job satisfaction. Therefore, this study H1: The professional identity of university teachers in Hainan Province significantly positively impacts job satisfaction, which is valid. After adding the mediating variable of work engagement, teacher's professional identity ($\beta=0.163, p<0.01$) still has a significantly positive predictive effect on teacher job satisfaction. Therefore, this study H3: The work engagement of university teachers in Hainan Province significantly positive impacts job satisfaction, which is valid.

Model 3: After controlling for gender, professional title, and teaching experience of * university teachers, regression analysis was conducted to examine the relationship between teacher's professional

identity and job engagement. Teacher's professional identity ($\beta=0.405$, $p<2.01$) had a significantly positive predictive effect on job engagement, with higher teacher professional identity indicating higher job engagement. Therefore, this study H2: The professional identity of university teachers in Hainan Province significantly positive impacts work engagement, which is valid.

Model 4: after controlling for gender, professional title, and teaching experience of * university teachers, compared the data with Model 2 teacher's professional identity ($\beta=0.276$, $p<0.001$) and Model 4 teacher's professional identity ($\beta=0.163$, $p<0.01$), it can be seen that although the relationship between teacher's professional identity and job satisfaction (β value) is significant, the coefficient value has decreased; From Model 4, it can be seen that work engagement ($\beta=0.276$, $p<0.001$) and teacher's professional identity ($\beta=0.163$, $p<0.01$) are still significant, but the coefficient values have also decreased. Therefore, work engagement partially mediates the relationship between teacher's professional identity and job satisfaction. Therefore, this study, H4: The work engagement of university teachers in Hainan Province, mediates the relationship between professional identity and job satisfaction, which is valid.

5. Main research findings and prospects

(1) Conclusions

1. Analysis of Differences in Professional Identity, Job Engagement, and Job Satisfaction among University Teachers in Different Scenarios

Through the analysis of the differences in different background variables among high school teachers in Hainan Province, it can be concluded that there are significant differences in the overall scales of teacher's professional identity, work engagement, and job satisfaction among university teachers in terms of gender, teaching experience, and professional title in this study.

In this study, there were significant differences in the "gender" of university teachers regarding their professional identity^{[11] [17]}, indicating that men have higher expectations and bear more important social responsibilities^[41]. The teaching profession does not meet society's expectations for men, so their professional identity is relatively low^[41]. There is no significant difference in the "gender" of university teachers' work engagement, and male teachers are significantly higher than female teachers in the dimension of vitality^[42]. There is a significant difference in job satisfaction among university teachers based on gender. Women tend to place greater emphasis on stability, family care, and a sense of security, which are integrated with the characteristics of teacher career stability. Women are also more likely to experience the value of their achievements in the teaching profession.

This study shows that there are significant differences in job satisfaction among university teachers' titles. Specifically, in the dimension of "professional behavior tendency," the professional identity of professors is higher than teaching assistants, and the professional identity of professors is higher than associate professors. The higher the teacher's professional title, the stronger their teaching ability, richer experience, and the recognition and attention they receive from leaders, colleagues, and students in their work. This leads to greater satisfaction and professional identity in the teaching profession. There are significant differences in the work engagement scale of university teachers' "professional titles," specifically manifested in the dimensions of "vitality," "contribution," and overall work engagement scale, where professors have higher work engagement than associate professors.

2. The impact of college teachers' professional identity on job satisfaction in higher education

The sense of professional identity among university teachers in Hainan Province significantly positive impacts their job satisfaction. The professional identity reflects teachers' emotional and cognitive attachment to this profession. If a teacher's professional identity is high, they will actively engage in education. This internal driving force can help teachers relieve some work pressure and view difficulties in the teaching process with an optimistic attitude, thereby improving their job satisfaction^[42].

3. The impact of college teachers' professional empathy on work engagement

The sense of professional identity among university teachers in Hainan Province has a significantly positive impact on their work engagement. This result is similar to the research on Tibetan police officers, grassroots civil servants, and kindergarten teachers, indicating a significantly positive correlation between teachers' professional identity and work engagement. Research has shown that job identification is reflected in the degree to which employees are matched with their profession. When employees perceive that they can perform a certain job, they increase their sense of identification with that job and the importance of profession to themselves. They are more willing to closely associate their job with their profession, which leads to a positive emotional cognition of their work and a higher level of investment in their work^{[24][27][44]}.

4. The impact of college teacher employment on job satisfaction

The work input of university teachers in Hainan Province significantly impacts their job satisfaction, similar to the research results on preschool teachers and doctors; that is, work input is significantly positive correlated with job satisfaction^{[45][46]}. Research has shown that work engagement emphasizes the cognitive and behavioral experience of the four work processes, and actively participating in work affairs with positive psychology and exhibiting an immersive and happy work state in behavior is a comprehensive state of satisfaction with the work process^[21].

5. The mediating role of college teacher work in the relationship between teacher professional identity and teacher job satisfaction

Based on fundamental data analysis, the work engagement of university teachers in Henan Province partially mediates the relationship between teacher's professional identity and job satisfaction, indicating that work engagement can act as a mediator to influence relevant variables^[11]. When job demands are met, it can stimulate employees to engage in their work actively, promoting job satisfaction^[47]. This study indicates that based on the Job Demand-Resource theory, job demand refers to the continuous consumption of resources and energy from work, i.e., job input. In contrast, job resources are supplementary resources and energy, i.e., teacher's professional identity. This study indicates that based on the Job Demands-Resources theory, job demands are the continuous depletion of resources and energy from work, that is, work engagement, while job resources are the replenishment of resources and energy, that is, teachers' professional identity. When job resources exceed job demands, teachers will gain more satisfaction in their work, that is, job satisfaction.

Research limitations and prospects

Although this study has verified the partial mediating effect of input on the relationship between teachers' professional identity and job satisfaction, there are still some shortcomings. Firstly, this study selected teachers from three universities in Hainan Province as the subjects. However, in future research, it is recommended that universities from other provinces be selected as samples to increase the applicability of the research results. Secondly, in terms of research variables, although this study has already confirmed the mediating effect of work engagement on the relationship between teacher's professional identity and job satisfaction, some studies have also verified the impact of psychological capital, emotional commitment, and

teacher's work-family on job satisfaction^{[9] [11] [15]}. Further research can consider other mediating factors for exploration. Finally, this study used the convenience sampling method in the questionnaire survey, which may be influenced by factors such as the strong subjective willingness of researchers to research questions and low cooperation. In future research, stratified sampling, interview, observation, and other methods can also be attempted to make the sample data more authentic, reliable, and representative of the target group.

This article explores the mediating role of job integration in the relationship between teacher's professional identity and job satisfaction. As the influence of the three variables in this study is a dynamic process that external environments can influence, empirical analysis was conducted on 4 variables. However, there is a lack of research from a basic perspective, and there may be other intermediary variables and moderating variables that need to be explored, such as psychological capital, emotional commitment, and teacher's work-family promotion. This study used a questionnaire survey for research, and in future research, it may be considered to combine it with interview methods, observation methods, etc., which will make more authentic, reliable, and accurate

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