

# The Relationship Between Professional Identity and Job Satisfaction Among Teachers at Newly Established Undergraduate Institutions: The Mediating Role of Work Engagement

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## Abstract

Amid the rapid development of higher education in China and the increasingly fierce competition among colleges, improving teachers' job satisfaction has become a critical criterion for ensuring the sustainable development of newly established undergraduate institutions and meeting the growing demand for talent cultivation. In this study I explore the impact of professional identity and work engagement on job satisfaction among teachers of different genders and ages. Based on conservation of resources theory, I utilized multiple regression analysis to investigate 637 university teachers from five newly established undergraduate institutions in Hebei Province, China. The results indicate significant differences in professional identity, job satisfaction, and work engagement among teachers of different genders and ages, with female teachers scoring higher than male teachers, and older teachers scoring higher than younger teachers. Professional identity has a significantly positive effect on job satisfaction and work engagement. Additionally, work engagement plays a partial mediating role between professional identity and job satisfaction among teachers at newly established undergraduate institutions.

**Keywords:** professional identity, job satisfaction, work engagement, conservation of resources theory

## 1. Introduction

The State Council of the People's Republic of China clearly stated in 2018 that teachers, as the primary resource for the development of education, bear the important mission of promoting national prosperity and the people's well-being. It is crucial to comprehensively enhance the quality of higher education teachers, which requires building a team of teachers with outstanding qualities. In this process, teacher job satisfaction is considered a key factor, even a decisive core element, in the construction of the teaching workforce (Edinger & Edinger, 2018). Skaalvik and Skaalvik (2011) found that teacher job satisfaction reflects teachers' overall satisfaction with aspects such as their work environment, salary, and career expectations, that is, their overall attitude toward their profession. When teachers have higher job satisfaction, they engage in their work with a positive and proactive attitude, which not only improves their work effectiveness but also significantly enhances the teaching quality of higher education teachers (Borrego et al., 2023; Fütterer et al., 2023).

Newly established undergraduate institutions refer to local undergraduate colleges that have been upgraded from junior colleges, restructured from adult education institutions, or formed through the merger and upgrading of schools at different levels since the 1990s (Fan et al., 2018). Newly established undergraduate institutions differ from traditional undergraduate colleges because they are in a specific developmental stage characterized by distinct regional features and applied universities' innovative nature (Zhou & Jiang, 2021). Therefore, fully understanding teachers' genuine work experiences in these institutions, improving their job satisfaction, and enhancing these colleges' educational and teaching quality are pressing issues that need to be explored and addressed to ensure the sustainable development of newly established undergraduate institutions (Wang, 2021).

However, with the rapid development of higher education and increasing competition among colleges in China, newly established local undergraduate institutions have continuously strengthened the management of teaching, research, and other aspects of their faculty to meet the growing demands for talent cultivation. This has provided new development opportunities and prospects for college teachers, but it has also led to an overload of teaching

and research work, with teachers facing increasing social and economic pressures (Chen et al., 2021). Practical experience in faculty management at higher education institutions indicates that dissatisfaction with factors such as the work environment among teachers at newly established undergraduate institutions can lead to low job satisfaction. This is one of the key reasons affecting teachers' work enthusiasm and causing a significant loss of high-quality teachers (Zou et al., 2022). These are the external factors contributing to insufficient job satisfaction among teachers. Ortan et al. (2021) found that teachers' dissatisfaction with their work and schools is not solely caused by dissatisfaction with the work environment but is also influenced to a certain extent by low professional identity and dissatisfaction with their own self-fulfillment. The scholars suggested that improving school teaching quality contributes to professional identity among teachers, which is an internal factor contributing to insufficient job satisfaction. Therefore, enhancing teachers' professional identity can promote job satisfaction from within (Carrinus et al., 2012).

In this study I aim to explore the relationship between professional identity and job satisfaction as well as investigate the mediating role of work engagement, providing theoretical support for the development of newly established undergraduate institutions in Hebei Province. These institutions face unique challenges in faculty development (Torrente & Dilek, 2023), with relatively limited prior research in this area. So my study fills this gap. Teachers at newly established undergraduate institutions face greater professional challenges and pressure, requiring them to be more flexible in their teaching and research (Chen et al., 2021). Therefore, support for their career development and psychological well-being interventions is crucial. I aim to analyze how professional identity and work engagement among teachers at newly established undergraduate institutions affect job satisfaction, to provide guidance for teacher workforce development and enhance professional growth and educational service efficiency at undergraduate institutions in Hebei Province.

### *1.1 Differences in Professional Identity, Job Satisfaction, and Work Engagement Based on Biographical Variables*

Butakor et al. (2021) found that gender and age affect teachers' professional identity. Female teachers have higher levels of professional identity than male teachers, and older teachers generally have stronger professional identity than younger teachers. Abdullah et al. (2009) explored significant relationships between job satisfaction and gender as well as between older and younger teachers, showing that male teachers and older teachers tend to have higher job satisfaction. Lu and Luo (2021) pointed out that teachers with more seniority tend to have higher levels of work engagement. In addition studies on gender differences in work engagement indicate that male teachers score significantly lower than female teachers in social engagement, cognitive engagement, and overall engagement (Topchyan & Woehler, 2021). Therefore, I propose the following hypotheses:

H1a: There are significant differences in professional identity, job satisfaction, and work engagement among teachers based on gender.

H1b: There are significant differences in professional identity, job satisfaction, and work engagement among teachers based on age.

### *1.2 Professional Identity and Job Satisfaction*

Professional identity is teachers' cognition and understanding of the value and significance of their profession and the positive attitude they hold towards their profession (Ashforth & Mael, 1989). Teacher professional identity has a significant influence on job satisfaction. The stronger the professional identity, the higher the teachers' job satisfaction (Goulet & Singh, 2002; Moore & Hofman, 1988). Therefore, enhancing professional identity helps improve teacher job satisfaction, stimulates their professional enthusiasm, enhances educational quality, and promotes the comprehensive development of students. This is crucial for optimizing the educational system and long-term planning of teachers' careers. Furthermore, studying professional identity can assist in formulating more targeted teacher training and support policies, enhancing the attractiveness of the teaching profession, reducing teacher turnover, and promoting sustainable development in education (Day et al., 2006).

Teachers' satisfaction with their work depends on various motivating factors, primarily originating from internal factors within individuals. Professional identity is one such factor; it enables teachers to develop a sense of satisfaction with their work (Suarez & McGrath, 2022). Wei and Song (2012) found in their study of primary and secondary school teachers that teachers' level of professional identity can predict their job satisfaction. The more teachers perceive the value of their work, feel the importance of their role as teachers, and have a strong sense of responsibility toward their work, the better job outcomes they achieve and the more they experience a sense of accomplishment, leading to higher job satisfaction. Based on these findings, I propose the hypothesis:

H2: Teachers professional identity at newly established undergraduate institutions has a significant positive impact on job satisfaction.

### *1.3 Work Engagement and Job Satisfaction*

For teachers, identification with educational teaching work and a positive engagement in educational teaching activities are referred to as teacher work engagement (Smith & Sheridan, 2019). Work engagement reflects an individual's cognitive, emotional, and attitudinal involvement in their work, indicating a positive state of behavior, emotion, and cognition during work (Barnes & Collier, 2013; Demerouti et al., 2010). Teacher work engagement is a critical factor in enhancing teachers' quality of life and promoting professional development. Increasing work engagement can stimulate teachers' proactivity.

Teacher work engagement has a significant positive impact on job satisfaction (Hermsen & Rosser, 2008). Individuals with high levels of work engagement demonstrate a strong identification with their work roles and are willing to invest time and effort to derive satisfaction from their work (Nwibere, 2014). Teachers who engage in their work with vigor and enthusiasm often achieve satisfactory teaching outcomes, leading to increased job satisfaction. Thus, work engagement has a positive connection with higher job satisfaction (Boštjančič & Petrovčič, 2019; Fute et al., 2022; Moura et al., 2014). Teachers with high work engagement can effectively promote individual self-development and enhance job satisfaction (Saks, 2006). Employees who invest energy in their work, take pride in it and are highly committed to it demonstrate higher job satisfaction (Sobaih & Hasanein, 2020). Therefore, I propose the following hypothesis:

H3: Teacher work engagement at newly established undergraduate institutions has a significant positive impact on job satisfaction.

### *1.4 Professional Identity, Work Engagement, and Job Satisfaction*

Individuals with a strong professional identity tend to exhibit more positive work behaviors consistent with their attitudes, leading to higher levels of work engagement (Pollock, 2008). Research indicates that professional identity among teachers positively influences work engagement (Beijaard et al., 2000; Greenier et al., 2021). When college teachers identify strongly with their job roles, they tend to invest abundant energy and time in school teaching affairs. High professional identity leads teachers to create individual records for each student in their class, actively monitor students' academic growth, and foster a conducive environment for their development. When students like and appreciate their teachers, this positive feedback serves as a powerful motivator, boosting teachers' self-esteem and self-efficacy. This, in turn, stimulates them to become more engaged and enthusiastic in their work. It also helps teachers maintain high professional identity and commitment because recognizing that students highly value their work makes them feel the significance and value of their career, thereby fostering a sense of satisfaction (Butakor et al., 2021).

Feeling a strong sense of identification with one's profession and being emotionally and physically invested in the work correlates with higher job satisfaction (Agarwal, 2014; Ibrahim & Al Falasi, 2014). These work-related attributes contribute to employees' efficiency and diligence. Hobfoll and Stevan (1989) proposed the conservation of resources theory (COR), which suggests that individuals strive to maintain, preserve, and build various cognitive and capability resources, including personal traits (such as self-efficacy), personal conditions (such as job conditions, years of experience, and marital status), and capability resources (such as money, time, knowledge, and relationship resources) as well as personal experience. I based my study on the COR and examine how professional identity among teachers at newly established undergraduate institutions in Hebei Province influences job satisfaction, expanding the theoretical foundation in this field (Van Der Want et al., 2019). I also investigate the mediating role of work engagement, providing theoretical support for the development of newly established undergraduate institutions in Hebei Province. Applying the COR, Jeanson and Michinov (2020) found that when teachers have a stronger professional identity, they acquire more resources such as skills, knowledge, and experience. This enhances their work engagement, leading to a greater willingness to invest in their work and further increase their resource input. Continuously improving their job capabilities boosts their confidence, allowing them to effectively dedicate themselves to their work, achieve job satisfaction, and thereby enhance resources. Therefore, I propose the following hypotheses:

H4: Teacher professional identity at newly established undergraduate institutions has a significant positive impact on work engagement.

H5: Teacher work engagement at newly established undergraduate institutions plays a mediating role in the impact of professional identity on job satisfaction.

## **2. Research Design and Methods**

### *2.1 Participants*

I adopted convenience sampling to select teachers from five newly established undergraduate institutions in Hebei

Province. These five institutions are central to the development of higher education in the province. Their growth has always been a focal point and priority in the province's higher education initiatives. The talent cultivation, scientific research, and social services at these five institutions drive and guide the development of other colleges of various types (Hebei Provincial Department of Education, 2023). Therefore, I took these five institutions as the sample for my research. I conducted the survey online, with a response time of 30 minutes. I distributed 140 questionnaires to each institution a total of 700 questionnaires. Out these, 679 were returned, yielding a response rate of 97%. Among the returned questionnaires, 637 were valid, resulting in an effective rate of 91%. Descriptive statistics show that there were 304 female teachers (47.700%) and 333 male teachers (52.300%) among the participants. The age distribution of the teachers was as follows: 140 teachers aged 20–30 years (22.000%), 154 teachers aged 31–40 years (24.200%), 188 teachers aged 41–50 years (29.500%), and 155 teachers aged 51–60 years (24.300%).

## 2.2 Research Tools

Wei et al. (2013) Professional Identity Scale for teachers includes 18 items across four dimensions: professional values, role values, professional belonging, and professional behavioral tendencies. The questionnaire features a 5-point Likert scale, ranging from *completely disagree* to *completely agree* scored from 1 to 5, respectively. The internal consistency of Cronbach's alpha for each factor ranges between .824 and .873, with a total of .892. Confirmatory factor analysis results for the professional identity scale are as follows:  $\chi^2/df = 1.164$ , RMR = .032, GFI = .974, AGFI = .966, IFI = .996, TLI = .995, CFI = .996, RMSEA = .016. All fit indices meet the reference values (Lawal & Lawal, 2003), indicating a good model fit. The standardized factor loadings for all items range between .717 and .808, all exceeding the reference value of .500. The composite reliability (CR) values for each dimension are .866, .871, .873, and .824, all above the reference value of .600. The average variance extracted (AVE) values are .563, .574, .579, and .610, all exceeding the reference value of .500. These results indicate that the scale has good reliability and validity (Fornell & Larcker, 1981).

Xu and Zhao (2012) developed Job Satisfaction Scale, consists of two dimensions: intrinsic satisfaction and extrinsic satisfaction. There are six items for intrinsic satisfaction and four items for extrinsic satisfaction. The questionnaire uses a 5-point Likert scale, where 1 point indicates that the teacher associates the description of the item completely disagree with the actual situation at their school, and 5 points indicate that the teacher associates the description completely agree with the actual situation at their school. The overall internal consistency reliability coefficient of the questionnaire is .881, with Cronbach's alpha for both the intrinsic and extrinsic satisfaction dimensions being greater than .700. Confirmatory factor analysis results for the job satisfaction scale are as follows:  $\chi^2/df = 1.297$ , RMR = .024, GFI = .986, AGFI = .978, NFI = .987, IFI = .997, TLI = .996, CFI = .997, RMSEA = .022. All fit indices meet the reference values (Lawal & Lawal, 2003), indicating a good model fit. The standardized factor loadings for all items range between .760 and .795, all exceeding the reference value of .500. The CR values for each dimension are .901 and .857, both above the reference value of .600. The AVE values are .602 and .601, both exceeding the reference value of .500. These results indicate that the questionnaire has good reliability and validity indices (Fornell & Larcker, 1981).

I measured work engagement using Klassen et al. (2012) Utrecht Work Engagement Scale (UWES). It consists of nine items scored on a 7-point Likert scale from 1 never to 7 always, designed to assess teachers' work engagement. Although Klassen et al. originally developed their UWES as a 17-item scale, research has indicated that the shorter nine-item version may demonstrate more stable psychometric properties (Schaufeli et al., 2006; Shimazu et al., 2008). Therefore, I adopt the nine-item measure. Cronbach's alpha for each factor ranges between .924 and .927, with the scale's overall Cronbach's alpha being .853. The confirmatory factor analysis results for the work engagement scale are as follows:  $\chi^2/df = .824$ , RMR = .039, GFI = .993, AGFI = .987, NFI = .996, IFI = 1.001, TLI = 1.001, CFI = 1.000, RMSEA = .000. All fit indices meet the reference values (Lawal & Lawal, 2003), indicating a good model fit. The standardized factor loadings for all items range between .888 and .908, all exceeding the reference value of .500. The CR values for each dimension are .924, .927, and .925, all above the reference value of .600. The AVE values are .801, .810, and .805, all exceeding the reference value of .500, indicating that the work engagement scale has good reliability and validity (Fornell & Larcker, 1981).

## 3. Research Results

### 3.1 Descriptive Statistical Analysis

Descriptive statistics show that the participants scored highest on the dimension of professional belonging, followed by professional values, then role values, with the lowest scores in professional behavioral tendencies. However, the overall average scores are all above the median. This indicates that teachers have a relatively high level of professional identity, which deserves attention. It also suggests that teachers place a greater emphasis on

their sense of professional belonging. The results show teacher job satisfaction ( $M = 3.292$ ,  $SD = 0.827$ ), intrinsic satisfaction ( $M = 3.270$ ,  $SD = 0.978$ ), and extrinsic satisfaction ( $M = 3.325$ ,  $SD = 0.991$ ). Teachers' job satisfaction and the average scores of each dimension are higher than the average of 3, which is at an upper-middle level. Teachers work engagement ( $M = 4.869$ ,  $SD = 1.205$ ), vitality ( $M = 4.904$ ,  $SD = 1.639$ ), dedication ( $M = 4.850$ ,  $SD = 1.644$ ), and focus ( $M = 4.854$ ,  $SD = 1.688$ ). Table 1 shows that the average scores of teachers work engagement and each dimension are higher than the average of 4, which is at an upper-middle level.

Table 1. Descriptive statistical analysis

Variable/Dimension	Number	<i>M</i>	<i>SD</i>
Professional values	5	3.319	0.928
Role values	5	3.290	0.953
Professional belonging	5	3.336	0.941
Professional behavioral tendencies	3	3.283	0.979
Professional identity	18	3.310	0.686
Intrinsic satisfaction	6	3.270	0.978
Extrinsic satisfaction	4	3.325	0.991
Job satisfaction	10	3.292	0.827
Vitality	3	4.904	1.639
Dedication	3	4.850	1.644
Focus	3	4.854	1.688
Work engagement	9	4.869	1.205

Note. I have compiled this table from the research.

### 3.2 Analysis of Variance

I investigated the differences of biographical variables (gender, age) in teacher professional identity, job satisfaction, and work engagement in Hebei Province by independent sample *t* test and analysis of variance (ANOVA).

### 3.3 Gender

I divided the teachers' gender into two groups, one with female teachers, the other with male teachers. The *t* test results showed that the teachers of the newly established undergraduate colleges in Hebei Province, China, had significant differences in teacher professional identity ( $t = 2.996$ ,  $p < .01$ ), job satisfaction ( $t = 2.606$ ,  $p < .01$ ), and work engagement ( $t = 2.158$ ,  $p < .05$ ) between different genders, with female teachers scoring higher than male teachers. Therefore, Table 2 shows that research hypothesis H1a is established.

Table 2. T Test on Variables

Variable	Female		Male		<i>t</i>	T test
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Professional identity	3.395	0.740	3.232	0.624	2.996**	1 > 2
Job satisfaction	3.382	0.934	3.210	0.708	2.606**	1 > 2
Work engagement	4.977	1.263	4.771	1.141	2.158*	1 > 2

Note. \* $p < .05$ , \*\* $p < .01$ ; 1 = female teachers, 2 = male teachers.

### 3.4 Age

In this study, I divided the ages of teachers in newly established undergraduate colleges in Hebei Province, China, into four groups: 1 (20–30 years old), 2 (31–40 years old), 3 (41–50 years old), and 4 (51–60 years old). I conducted a one-way ANOVA and, after my testing for homogeneity of variances, the results indicated that there were significant differences in teacher professional identity ( $p < .001$ ), job satisfaction ( $p < .001$ ), and work engagement ( $p < .01$ ) based on different age groups, indicating heterogeneity of variances. Subsequently, I conducted a one-way ANOVA using the Brown-Forsythe and Welch statistics. The results showed significant differences in teacher professional identity ( $p < .001$ ), job satisfaction ( $p < .001$ ), and work engagement ( $p < .01$ ). Therefore, I used the Games-Howell method for post hoc comparisons.

Post hoc comparisons revealed significant differences based on different age groups in teacher professional identity ( $F = 7.912$ ,  $p < .001$ ), job satisfaction ( $F = 11.664$ ,  $p < .001$ ), and work engagement ( $F = 4.615$ ,  $p < .01$ ).

Specifically, for professional identity, teachers aged 41–50 scored higher than those aged 20–30, and those aged 51–60 scored higher than those aged 20–30. For job satisfaction, teachers aged 41–50 scored higher than those aged 20–30 and 31–40, and those aged 51–60 scored higher than those aged 20–30 and 31–40. For work engagement, teachers aged 41–50 scored higher than those aged 20–30. Therefore, Table 3 establishes research hypothesis H1b.

Table 3. ANOVA on Variables

Variable	Homogeneity test	Age	M	SD	F	Post hoc
Professional identity	8.022***	1	3.098	0.494	7.912***	3>1
		2	3.264	0.696		4>1
		3	3.390	0.669		
		4	3.450	0.794		
Job satisfaction	11.793***	1	3.013	0.725	11.664***	3>1
		2	3.173	0.831		3>2
		3	3.443	0.834		4>1
		4	3.479	0.820		4>2
Work engagement	4.657**	1	4.630	1.139	4.615**	3>1
		2	4.741	1.166		
		3	5.072	1.243		
		4	4.967	1.212		

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; 1 = Ages of 21–30 years; 2 = Ages of 31–40 years; 3 = Ages of 41–50 years; 4 = Ages of 51–60 years.

### 3.5 Correlation Analysis

The correlation analysis results reveal that professional identity is significantly positively correlated with job satisfaction ( $r = .633, p < .001$ ). Professional identity is significantly positively correlated with work engagement ( $r = .572, p < .001$ ), and job satisfaction is significantly positively correlated with work engagement ( $r = .537, p < .001$ ). The correlation coefficients between four dimensions (professional values, role values, sense of professional belonging, and professional behavioral tendencies) with work engagement and job satisfaction range from .357 to .473, all reaching significant levels and none exceeding .800, indicating no multicollinearity issues (Maruyama, 1998). Additionally, the correlation coefficients between the dimensions of professional identity and the components of work engagement (vitality, dedication, focus) as well as the components of job satisfaction (intrinsic satisfaction, extrinsic satisfaction) range from .216 to .413, all reaching significant levels. Table 4 shows the analysis results.

Table 4. Correlation analysis

	Professional values	Role values	Professional belonging	Professional behavioral tendencies	Professional identity	Intrinsic satisfaction	Extrinsic satisfaction	Job satisfaction	Vitality	Dedication	Focus	Work engagement
Professional values	1											
Role values	.398***	1										
Professional belonging	.336***	.391***	1									
Professional behavioral tendencies	.284***	.359***	.366***	1								
Professional identity	.724***	.769***	.745***	.622***	1							
Intrinsic satisfaction	.407***	.389***	.409***	.386***	.550***	1						
Extrinsic satisfaction	.376***	.413***	.343***	.319***	.507***	.395***	1					
Job satisfaction	.469***	.473***	.455***	.426***	.633***	.898***	.759***	1				
Vitality	.327***	.350***	.276***	.274***	.428***	.349***	.313***	.397***	1			

Dedication	.305***	.338***	.283***	.290***	.421***	.364***	.328***	.415***	.307***	1		
Focus	.279***	.331***	.300***	.216***	.398***	.309***	.293***	.359***	.252***	.319***	1	
Work engagement	.417***	.467***	.394***	.357***	.572***	.468***	.428***	.537***	.711***	.743***	.727**	1
Average value	3.319	3.290	3.336	3.283	3.310	3.270	3.325	3.292	4.904	4.850	4.854	4.869
Standard deviation	0.928	0.953	0.941	0.979	0.686	0.978	0.991	0.827	1.639	1.644	1.688	1.205

Note. \*\*\*  $p < .001$ .

### 3.6 Multiple Regression Analysis

On the basis of the above analysis, I used regression methods to further verify the relationship between the variables as shown in Table 5.

In Model 1, controlling for gender and age, I analyzed the predictive effect of professional identity on job satisfaction. The results show that teacher professional identity has a significant positive impact on job satisfaction ( $\beta = .608, p < .001$ ), with the scores reaching statistical significance:  $F = 89.528 (p < .001)$ . This model explains 41.500% of the variance in job satisfaction. Among the control variables, the age groups 20–30 years ( $\beta = -.107, p < .01$ ) and 31–40 years ( $\beta = -.091, p < .05$ ) are significant, whereas other control variables are not significant.

In Model 2, I investigated whether professional identity predicts job engagement when controlling for gender and age. The results indicate that teacher professional identity has a significantly positive effect on work engagement ( $\beta = .565, p < .001$ ). The model was statistically significant:  $F = 62.738 (p < .001)$ , explaining 33.200% of the variance in job engagement. None of the control variables was significant.

In Model 3, the mediating variable is work engagement and controlling for gender and age. The results indicate professional identity has a significantly positive effect on job satisfaction ( $\beta = .465, p < .001$ ). Work engagement also has a significantly positive effect on job satisfaction ( $\beta = .253, p < .001$ ). The model was statistically significant:  $F = 88.657 (p < .001)$ , explaining 45.800% of the variance in job satisfaction. Among the control variables, age groups 20–30 years old ( $\beta = -.107, p < .01$ ) and 31–40 years old ( $\beta = -.087, p < .05$ ) were significant, whereas other control variables were not significant. Variance inflation factor (VIF) values were below the standard threshold of 10, indicating no issues of multicollinearity.

Comparing the data of Model 3 and Model 1, I found that, with work engagement as the mediating variable, the regression coefficient  $\beta$  of professional identity decreased from .608 to .465, which shows that work engagement is a mediating variable between professional identity and job satisfaction, but it only plays a partial mediating role.

Table 5. Multiple regression analysis

Variable	Model 1 Job satisfaction		Model 2 Work engagement		Model 3 Job satisfaction		VIF
	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$	
Female teacher	.035	1.140	.017	.519	.031	1.037	1.022
Aged of 20–30	-.107	-2.824**	.003	.077	-.107	-2.953**	1.539
Aged of 31–40	-.091	-2.408*	-.016	-.398	-.087	-2.387*	1.533
Aged of 41–50	.001	.032	.061	1.497	-.014	-.386	1.573
Professional identity	.608	19.437***	.565	16.917***	.465	12.794***	1.533
Work engagement					.253	7.052***	1.497
R <sup>2</sup>	.415		.332		.458		
Adj.R <sup>2</sup>	.410		.327		.453		
F	89.528***		62.738***		88.657***		

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ; Gender control group is male teachers; age control group is 51–60 years old.

### 3.7 Mediation Effect Test

Researchers can also use the Sobel (1982) test to test the stability of the mediation model. The test involves dividing the estimated value of the mediating effect by the standard error of the estimated value of the mediating effect to obtain a z value, comparing this z value with the critical z value based on the standard normal distribution. If the z value is greater than the critical z value, it indicates that the mediating effect exists. If the z value is less than the critical z value, it indicates that the mediating effect does not exist. The mediating effect of work

engagement between professional identity and job satisfaction,  $z$  value = 6.431 ( $p < .001$ ), shows that the mediating effect of work engagement is significant. The  $a$  term refers to the (unstandardized) original regression coefficient between the independent variable and the mediating variable.  $S(a)$  refers to the standard error of  $a$ . The  $b$  term refers to the (unstandardized) original regression coefficient between the mediating variable and the dependent variable.  $S(b)$  refers to the standard error of  $b$  as shown in Table 6.

Table 6. Mediation Effect Following the Sobel Test

Indirect effects	a	b	S(a)	S(b)	z value
PI→WE→JS	.992***	.174***	.059	.025	6.431***

Note. \*\*\*  $p < .001$ ; PI = professional identity, JS = job satisfaction, WE = work engagement.

## 4. Discussion

### 4.1 Differences in Variables with Different Biographical Variables

The results of this study indicate significant differences among teachers of different genders at newly established undergraduate institutions in Hebei Province, China, concerning professional identity, job satisfaction, and work engagement, with female teachers exhibiting higher levels than male teachers. Regarding professional identity, Butakor et al. (2021) suggested that female teachers may seek more collaboration and support throughout their careers, contributing to a positive sense of professional identity. In terms of work satisfaction, female teachers may excel in finding a balance between work and personal life, thereby enhancing job satisfaction (Msuya, 2016). Regarding work engagement, female teachers may prioritize the social significance and impact of the educational profession, potentially motivating them to engage more deeply in their work (Topchyan & Woehler, 2021).

I found significant differences among teachers of various age groups at these newly established undergraduate institutions concerning professional identity, job satisfaction, and work engagement. Specifically, in terms of professional identity, teachers aged 41–50 years surpassed those aged 20–30 years, and those aged 51–60 years surpassed the younger age group of 20–30 years. According to Butakor et al. (2021), older teachers typically hold higher status and have more stable careers within the education system, factors that may enhance their professional identity. In contrast, younger teachers may still be exploring their career paths, potentially resulting in less developed professional identity. Regarding job satisfaction, teachers aged 41–50 years reported higher levels compared to those aged 20–30 years and 31–40 years. Similarly, teachers aged 51–60 years showed higher job satisfaction than those aged 20–30 years and 31–40 years. This could be attributed to younger teachers focusing more on career development and promotion opportunities, whereas older teachers may prioritize job stability and a balanced quality of life (Lu & Luo, 2021), contrasting with Ulucan (2017) findings. I also observed significant differences in work engagement among different age groups, with teachers aged 41–50 years exhibiting higher levels compared to those aged 20–30 years. Older teachers may possess more mature and proactive work attitudes and values, demonstrating a greater willingness to invest in teaching and research while emphasizing work quality and outcomes (Bakker & Bal, 2010).

### 4.2 The Impact of Teacher Professional Identity on Job Satisfaction

I found that professional identity and job satisfaction among teachers at newly established undergraduate institutions in Hebei Province, China, have a significantly positive relationship, thus confirming hypothesis H1. The reason behind this is that the clarity of teacher professional identity is positively correlated with the degree of norm internalization and professional commitment, which manifests as higher levels of job satisfaction (Han et al., 2022). Furthermore, teacher professional identity is an intrinsic motivator for their work, fostering a sense of job satisfaction (Suarez & McGrath, 2022). Additionally, professional identity can serve as a predictor of job satisfaction. The more teachers feel that their work is valuable and perceive the importance of their role, the stronger their sense of responsibility toward their work. This leads to better job performance and a sense of accomplishment, thereby increasing job satisfaction (Wei & Song, 2012). This indicates that professional identity positively promotes job satisfaction among teachers.

### 4.3 The Impact of Teacher Work Engagement on Job Satisfaction

This study shows that teacher work engagement has a significant positive impact on job satisfaction in newly established undergraduate colleges in Hebei Province, China, thus verifying hypothesis H2. The reason is that teachers actively participate in student affairs and show a high level of work commitment, which helps to establish a good teacher–student relationship and make it easier for teachers to obtain recognition and rewards from leaders and peers, thereby experiencing a higher sense of accomplishment and value. This suggests that work engagement



is an important predictor of job satisfaction (Saks, 2006). Work engagement represents a professional attitude and is usually defined as the degree to which an individual psychologically identifies with their job, that is, the degree to which they value their work. Work engagement is related to the current job and depends on the current employment status and the satisfaction of personal needs (Jufrizen et al., 2023). Compared to those who are not engaged in their work, those with high work engagement experience stronger job satisfaction. Individuals with high work engagement typically have more energy, emotional fulfillment, and enthusiasm for their work. They are more willing to take on challenges and achieve satisfactory work outcomes, thereby enhancing work satisfaction. Work engagement is a key factor in improving teachers' quality of life and promoting professional development. Increasing work engagement can stimulate teachers' enthusiasm and initiative. Highly engaged teachers can more effectively promote their personal development and improve their job satisfaction (Sun et al., 2022). Studies have shown that employees who invest energy in their work, feel proud of their work, and focus on their tasks exhibit higher job satisfaction (Sobaih & Hasanein, 2020). This indicates that the higher the level of work engagement among teachers, the higher their job satisfaction.

#### *4.4 The Impact of Teacher Professional Identity on Work Engagement*

This study shows a positive influence between professional identity and work engagement among teachers at newly established undergraduate institutions in Hebei Province, China, supporting hypothesis H3. According to Butakor et al. (2021), professional identity highlights teachers' passion and recognition for their work. From the perspective of COR, professional identity motivates teachers to invest more of their cognitive, intellectual, and emotional resources in their educational work, aligning the meaning and value of their work with their career goals, thus focusing more on their tasks (Agarwal, 2014). Professional identity enhances teachers' abilities in areas such as experience accumulation, individual learning, and emotional stimulation, boosting their confidence and determination to complete their work, thereby inspiring high levels of enthusiasm for their job (Sun et al., 2022). This indicates that the stronger the teachers' sense of professional identity, the higher their level of work engagement.

#### *4.5 Work Engagement in the Influence of Professional Identity on Job Satisfaction*

In this study I explored the mechanism by which teacher professional identity affects job satisfaction and work engagement, with work engagement assumed to be a mediating variable. Hypothesis H4 was approved. The results indicate that in newly established undergraduate institutions in Hebei Province, China, teacher work engagement partially mediates the relationship between professional identity and job satisfaction.

According to COR, individuals strive to acquire, maintain, and protect their material, personal, and social resources (Halbesleben et al., 2014). At the personal level, professional identity can be considered a personal resource, involving an individual's sense of identification and commitment to their professional role (Guedes et al., 2020). The stronger an individual's professional identity, the more likely they are to engage in their work and protect and accumulate their resources. Work engagement signifies the allocation of resources; if individuals invest a significant amount of time, energy, and emotion into their work, they expect corresponding returns. Job satisfaction signifies an evaluation of the resources invested and the returns received (Simbula & Guglielmi, 2013). At the social level, social recognition influences the level of work engagement among college teachers (Wei & Song, 2012). When college teachers receive social attention, they perceive an enhancement in social status, which in turn increases their professional identity. This heightened identity motivates them to engage more actively in their work and enjoy the satisfaction that work brings (Karanika-Murray et al., 2015). My findings support COR and confirm my hypotheses.

### **5. Conclusion and Suggestions**

The professional identity of teachers at newly established undergraduate institutions in Hebei Province, China, has a significantly positive effect on job satisfaction, and it also positively influences work engagement. Work engagement, in turn, significantly impacts job satisfaction, serving as a partial mediator between professional identity and job satisfaction. Enhancing professional identity can directly improve teachers' job satisfaction and indirectly increase satisfaction through enhanced work engagement. Professional identity is a crucial psychological foundation for promoting teachers' professional development, with a clear correlation between professional identity and job satisfaction. The level of professional identity directly affects teachers' job satisfaction (Han et al., 2022; Suarez & McGrath, 2022).

Therefore, I conclude that enhancing teacher professional identity is key to improving job satisfaction. Administrators should focus on enhancing teacher professional identity through career development planning, training, and support systems. Additionally, they should pay attention to teacher work conditions and psychological experiences to create a positive campus culture and provide necessary psychological support

services. These measures can further strengthen teacher work engagement, thereby promoting job satisfaction. Such actions not only enhance teachers' personal well-being but also contribute significantly to improving the school's quality of education and its overall development.

I propose the following research recommendations. In the study of teachers at newly established undergraduate institutions, professional identity, work engagement, and job satisfaction are measures of teachers' subjective perceptions, which differences in subjective cognition may influence. Professional identity has a significantly positive effect on job satisfaction. When work engagement is included as a mediator, the path coefficient of the effect of professional identity on job satisfaction decreases, indicating that work engagement plays a partial mediating role between professional identity and job satisfaction. This suggests that there may be other mediating variables. Therefore, future researchers could explore other variables that mediate the relationship between professional identity and job satisfaction, providing a theoretical foundation for subsequent empirical studies. Future researchers could further investigate the outcome variables of job satisfaction among university teachers. In this study, based on COR, I examined the motivation process of teachers at newly established undergraduate institutions in China. Teachers' job satisfaction leads to positive work outcomes, thereby stimulating their work motivation. I primarily investigated the antecedent variables of teachers' job satisfaction without examining the outcome variables of job satisfaction (such as teaching performance and retention intentions). In COR, the outcomes of job satisfaction are important variables, and future researchers could further expand the scope of study.

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Dr. Xinmin Zhang and Associate Professor Yuan-Cheng Chang were responsible for study design and revising.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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No additional data are available.

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