

A Survey of Pre-service Teachers' Motivation to Teaching and Teachers Professional identity: the case of Heze University in China

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Abstract

Teacher professional identity plays an important role in teacher education and can largely influence teachers' educational and teaching practices and professional development. In order to solve the situation of pre-service teachers' professional identity, a questionnaire survey method was used to investigate 748 teacher-training students in Heze University of China. In this study, Partial Least Squares Structural Equation Modeling using Smart PLS software was used to test the research hypotheses. The results of the study showed that pre-service teachers' professional identity was at a moderate to high level; the level of motivation to teaching was at a moderate to high level; there was a significant correlation between motivation to teaching and teachers' professional identity, and it predicted teachers' professional identity.

Keywords: Preservice Teachers, Motivation to Teaching, Teachers' Professional Identity

Research Background

The 2018 Action Plan for the Revitalization of Teacher Education (2018-2022) promulgated by China clearly states that "the focus is on cultivating a sense of social responsibility and professional identity for teachers", which shows that teachers' professional identity plays an important role in teacher education. Teacher professional identity is an inherent constraint mechanism for teachers' professional development. If teachers have a low sense of their professional identity, they may set themselves as merely pedagogues who deliver knowledge and lack a sense of professional responsibility and motivation, which in turn affects their own professional development as teachers and also has an impact on teaching quality and students' physical and mental development. Teachers' professional identity not only affects the learning of basic knowledge and teaching skills and the development of physical and mental health of pre-service teachers, but also has different

degrees of influence on the perception of the future teaching profession. The extent to which teachers identify with their profession can largely influence their educational and teaching practices and professional development.

Some studies have shown that teacher turnover is higher in the early stages of a teacher's career than in the middle of a career (Loreman et al., 2013; Ingersoll & Smith, 2004). New teachers can feel overwhelmed or frustrated when they discover a significant difference between what they imagined their teacher practitioner to be and what he actually experienced, leading to higher teacher turnover among new teachers and further impacting educational effectiveness in the United States and around the world (Sinclair, 2008).

Teacher shortage has been identified by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a global issue affecting countries around the world. According to the UNESCO Institute for Statistics (2013), achieving universal primary education requires the creation of 1.6 million teaching jobs by 2015, a number that will rise further to 3.3 million by 2030. In this context, attracting, recruiting and retaining sufficient numbers of motivated and committed trainee teachers is a clear global policy issue (Heinz & Manuela, 2015). Foreign research on teachers' professional identity is emerging as a separate field of study (Beijaard et al., 2004). Teacher education students and masters of education are the main source of teachers in China, and it is necessary to study the professional identity of this group of teachers, to clarify the main characteristics and main influencing factors of the development of pre-service teachers' professional identity, and to provide a reference for teacher education in higher education institutions. Therefore, a systematic study of the characteristics and influencing factors of Chinese pre-service teachers' professional identity based on the Chinese cultural background and educational reality is an important new topic for Chinese teachers' professional psychology and teacher education research to face in common.

Literature Review and Research Hypothesis

Motivation to Teaching

Research on motivation for teaching began in the 1990s, and the definition of the concept varies depending on the subject and context of the study. Most foreign scholars have studied the motivation of preservice teachers, so the definitions of motivation are mostly focused on preservice teachers. Sinclair (2008) argued that motivation is what attracts individuals to teaching, determines whether preservice teachers continue to receive teacher education, and predicts how long they will stay in the profession and the extent to which they will engage in the teaching profession in the future. Ma and Zhao (2007) considered teacher motivation as an internal psychological state that directly drives teachers to engage in educational and teaching activities to satisfy certain psychological needs of teachers. Alexander (2008) argued that motivation to teaching refers to the internal psychological factors that influence individual teachers' learning skills, their choice to enter the teaching profession or not, and their work commitment in relation to their work as teachers. In studying pre-service teachers of English, Li (2018) defined pre-service teachers' motivation to teach as being triggered by various internal and external needs and as an internal psychological process by which individuals choose to engage in the teaching profession. There are also studies focusing on new teachers, which consider teachers' motivation to teach as a motivation for teachers to complete their teaching tasks on schedule and take the initiative to develop students' success after joining the profession (Lin, 2000). Other studies, on the

other hand, locate the study on specific groups of teachers, with the rural teachers group being the majority of the study subjects, and they argue that motivation to teach refers to the internal psychological factors that lead individuals to engage in the teaching profession and thus give them a sense of satisfaction and existence in their work (Ma & Zhao, 2007; Suo et al., 2022). Teachers' motivation to teach also predicts, to some extent, their enthusiasm for the teaching profession and their tendency to improve their profession after they formally start teaching (Suo et al., 2022). As can be seen, due to the different research groups, there are different conceptual definitions of teaching motivation in the academic community, but these concepts also have some commonalities, which is that teaching motivation an internal psychological factor that influences individual teachers' career choices and is also an important factor that affects individuals' future professional teacher development.

Teachers' Professional Identity

Teacher professional identity is a composite of teachers' positive perceptions, experiences, and behavioral tendencies toward their profession and their internalized professional roles (Huang, 2021). Pre-service teacher professional identity refers to pre-service teachers' views and perceptions of their self-identity, teacher role, social status, and actual teaching behaviors in the course of formal teacher education, and can also be seen as the specific manifestation, state, and process of teacher identity in teacher educators (Yang, 2021). Korthagen (2004) assumes that in order to prepare teachers for the profession, it is important to focus not only on the development of teacher behaviors or capabilities, but also on the deeper level of professional identity. Teacher professional identity is the expression of an individual's activities, knowledge, beliefs, and attitudes related to teaching (Urzúa & Vásquez, 2008) and is the process by which individuals consistently interpret and reinterpret experiences and values related to the teaching profession and gain meaning (Flores & Day, 2008). Professional identity provides teachers with a cognitive framework for constructing their work and social status, is a central organizing element of their professional lives, and largely determines their teaching effectiveness, educational attitudes, and professional development processes (Sachs, 2005). For normal students at the teacher education stage, professional identity may also influence their readiness to teach, teachers' judgments and behaviors in the classroom (e.g., Chant, Heafner, & Bennett, 2004), and, in turn, their future career development. Yang (2021) surveyed 155 college seniors and graduate students on five dimensions: role value, professionalism, professional value, professional belonging, and professional behavior tendencies, and found that pre-service teachers' professional identity was overall at a moderate to high level. Zhu (2021) studied 518 physical education teacher-training students in four dimensions: career intentions and expectations, career will, career values, and career efficacy, and found that the career identity and learning commitment of physical education normal students were at a moderate to high level. Xiang (2021) investigated four dimensions of English majoring public normal students in Shandong Province, China, from occupational identity, professional identity, personal identity, and exit identity, and found that English public normal student graduates had an overall high level of pre-service imagined identity. Xu (2021) conducted a study with normal students from a Chinese university to investigate three dimensions from teacher career perception, teacher career emotion, and teacher career reputation, and found that the overall level of teacher career identity was high among teacher trainees majoring in elementary education. Qu (2021) conducted a questionnaire survey on 303 teachers who graduated from the six-year public

teacher training program from eight dimensions, which showed that the professional identity of public normal students was at a moderate to high level. Huang (2021) developed a survey scale of factors influencing career identity in three dimensions: family factors, social factors, and school factors, and surveyed 523 normal students and master's students, and found that pre-service teachers' career identity was generally positive. In addition, the influence of professional identity on the development of teacher educators' teaching practice has received much attention from scholars, and Bullough (1997) have emphasized that the professional identity of teacher educators should be regarded as the key to teacher education practice and given sufficient attention.

Motivation for Teaching and Teachers' Professional Identity

As research on teachers' professional identity continues, some researchers have found that there is a strong relationship between motivation to teach and teachers' professional identity. According to Stufflebeam (2000), there are three main factors that influence preservice teachers' professional identity: contextual factors such as policies, laws, and types of education related to teacher education; input factors in the form of demographic variables such as preservice teachers' motivation to teach and personality traits; and process factors such as teacher support and guidance received during the teacher education process and career readiness. Schepens et al (2009) had explored different factors affecting pre-service teachers' professional identity and the results showed that variables such as type of teacher education, teacher support, and motivation to teach were the most significant predictors of professional identity. Zhang et al (2011) concluded that teachers' professional identity has stable predictive power on academic achievement and external motivation to learn plays a partially mediating role between teachers' professional identity and academic achievement. Ma et al (2013) emphasized that there is a significant effect of major studied and motivation to enter school on teacher career identity of the normal students. Wei et al (2013) classified free pre-service teachers' professional identity into four types: love, interest, utilitarian, and avoidance, and each type of free pre-service teachers differed significantly in their learning motivation levels. Zhao and Zhang (2015) used 743 free teacher trainees as subjects to study the relationship between teacher trainees' satisfaction with the free education policy and their motivation to teach and their career identity using questionnaires. Zhao and Zhang (2016) examined the relationship between motivation to teaching and career identity using questionnaire measures with 733 free teacher-training students as subjects. Ma (2019) used 295 publicly funded teacher trainees in Ningxia, China, to test the current status of the career identity of publicly funded teacher trainees in Ningxia and to examine the relationship between their career identity and their motivation to teach. The study found that the motivation of publicly funded teacher trainees influenced their career identity as teachers. Therefore, the research hypothesis was proposed: two dimensions of teacher educators' motivation to teach are positively and significantly related to four dimensions of teachers' professional identity, and motivation to teach can positively predict teachers' professional identity.

Research Methodology

Research Subjects

A convenience sampling method was used to select teacher-training students from China Heze College after obtaining the agreement of teacher-training students and teachers from

China Heze College. The questionnaires were distributed online and on site, and the survey was conducted on a one-to-one basis, with the investigator explaining the purpose of the survey, the content of the questionnaire and the question items to the study participants. The survey was conducted on a voluntary basis, and was filled out and collected on the spot. The researcher distributed a total of 945 questionnaires, of which 748 were validly collected, with an effective recovery rate of 79%. Among them, 124 (16.6%) were male students and 624 (83.4%) were female students. There were 269 first-year students (36%), 241 second-year students (32.2%), 178 third-year students (23.1%), and 65 fourth-year students (8.7%). There were 265 (35.4%) elementary education majors, 234 (31.3%) preschool education majors, 34 (4.5%) psychological education majors, 120 (16%) special education majors, 45 (6%) art education majors, and 50 (6.7%) education majors. There were 682 undergraduates (91.2%) and 66 specialists (8.8%).

Research Instruments

Motivation to Teaching

The Motivation in Teacher Education Questionnaire, revised by Schepens, Aelterman, and Vlerick (2009) was used. The questionnaire consists of two dimensions, reflecting the individual's love for teaching and interest in teaching, and consists of four items. The higher the score, the higher the motivation to teach. The Cronbach alpha coefficient of the scale was 0.82.

Teachers' Professional Identity

The Teacher Professional Identity Scale was developed by Wei (2008), which has 18 questions and consists of four dimensions: role values, professional behavior tendencies, professional values, and professional belongingness. The scale uses a 5-point Likert scale, which is divided into five levels of very unconforming, relatively unconforming, uncertain, relatively conforming, and very conforming in order to assign a score of 1-5. The internal consistency coefficient of the scale was 0.893.

Research Procedures and Data Analysis

The investigator, with the assistance of teachers and related personnel, selected teacher education students who met the requirements and were willing to cooperate to participate in this study and distributed questionnaires. In the process of filling out the questionnaires, the researcher gave answers to the students' lack of understanding in a timely manner and collected the questionnaires on the spot. SPSS23.0 statistical software was used to establish a database, descriptive statistics were used to analyze the levels of motivation to teach and teacher professional identity, and Smart PLS software was used to establish a partial least squares structural equation model to verify the research hypotheses.

Research Results

Common Method Bias

When studying the causal relationship between exogenous and endogenous variables, common method bias may arise when observing the correlation between the two outcomes if the same method is used for their measurement (Nghah et al., 2015). Common method variance (CMV) is the spurious common variance among traits that results from using the same measurement instrument and is commonly found in data measured by self-statement scales (Xiong et al., 2013). CMV mainly arises from the same data collection method, the

characteristics of the items themselves, and the response bias of the subjects (Podsakoff et al., 2003). The bias caused by CMV is called common method bias (CMB) and is a trait-independent systematic error that affects the validity of the measurement (Simmering et al., 2015). The researchers used the full covariance test proposed by Kock (2015) in their statistical analysis. According to this method, a variance inflation factor (VIF) value of less than 5.0 indicates the absence of severe method bias (CMB). The VIF values of this study are shown in Table 1 and are all less than 5.0. Therefore, it can be concluded that the study is not affected by CMB.

Table 1

Full collinearity testing.

PL	IIT	RV	PB	PV	PBT
1.518	1.518	2.091	1.960	2.114	2.079

注 : PL=professional love, IIT=interest in teaching, RV=professional value, PB=professional belonging, PV=professional values, PBT=professional behavior tendency

Pre-service teachers' level of professional identity in teaching

The study used SPSS 23.0 data analysis software for descriptive statistical analysis of the data, which was described using mean, standard deviation, and percentages. As can be seen from Table 2, where the score for role values was (3.412 ± 0.918), the mean score for the professional behavior tendency dimension was (3.404±0.940), the score for the professional values dimension was (3.406±0.943), and the score for the sense of belonging to the profession was (3.408 ± 0.962), the overall mean score for teachers' professional identity was (3.408±0.795), which is higher than the scale threshold (3.0), indicating that the level of pre-service teachers' professional identity is at a moderate to high level. Then, the professional identity and the mean scores of the four dimensions were graded by the visualization score box method. Overall, 72% of the pre-service teachers scored higher than the critical value for their teaching professional identity, indicating that most of the pre-service teachers have a high level of identity with the teaching profession.

Table 2

Levels of teachers' professional identity (n=748)

Scale dimensions	Role values	Professional behavioral tendencies	Professional values	Professional Belonging	teacher professional identity
M	3.412	3.404	3.406	3.408	3.408
SD	0.918	0.940	0.943	0.962	0.795
<= 2.00	7.5%	9%	9.4%	9.8%	7.8%
2.01 - 3.00	30.2%	30.1%	30.6%	31.1%	20.3%
3.01 - 4.00	32.9%	29.9%	30.3%	32%	49.1%
4.01-5.00	29.4%	31%	29.7%	27.1%	22.9%

Levels of pre-service teachers' motivation to teaching

The basic information of pre-service teachers' motivation to teach is shown in Table 3. From Table 3, it can be seen that the score of career love is (3.966±1.097), the mean score of teaching interest dimension is (4.04±1.112), and the overall mean score of motivation to teach is (4.003±0.983), which is higher than the theoretical mean score of the scale (3.0), indicating that pre-service teachers have a moderate to high level of motivation to teach. The motivation to teach and the mean scores of the two dimensions were then ranked by the visualization score box method. Overall, 79.5% of the preservice teachers scored higher than the theoretical mean score for teacher motivation, indicating that most of the preservice teachers had a high level of motivation to teach for the teaching profession.

Table 3

Levels of pre-service teachers' motivation to teach (n=748)

Scale dimension	Professional love	Teaching interest	motivation to teach
M	3.966	4.040	4.003
SD	1.097	1.112	0.983
<= 2.00	6.3%	6.4%	2.1%
2.01 - 3.00	23.1%	21.5%	18.3%
3.01 - 4.00	25.5%	25.1%	32.6%
4.01 - 5.00	34.4%	32.6%	34.5%
5.01-6.00	10.7%	14.3%	12.4%

Measurement Model

According to the method proposed by Anderson & Gerbing (1988), we performed a two-step procedure to analyze the model, i.e., the measurement model and the structural model. Measurement Model

The measurement model has been assessed using construct reliability, convergent and discriminant validity methods. Factor loadings of the indicators, Cronbach's alpha coefficient (CA) were tested in the study variables to assess the reliability of the structural model. In addition, a composite reliability (CR) test was conducted to determine the reliability of the construct. According to Risher et al (2019), a model has construct reliability if the values of CA and CR are greater than 0.70. This study found that these values exceeded the threshold defined by Hair et al (2019), confirming that construct reliability has been established in this study. As for examining item loadings, according to Hair et al (2019), item loadings should be higher than > 0.7. According to Hair et al (2017), AVE > 0.5 is also acceptable. The results of the data in the table below show that the Cronbach's α , outer loadings, CR and AVE values of the motivation to teach and the two dimensions meet the criteria. This indicates that the internal consistency coefficient and the reliability and convergent validity of the indicators of motivation to teach and the two dimensions meet the criteria. The Cronbach's α , outer loading, CR and AVE values of the four dimensions of professional identity met the criteria. It means that the internal consistency coefficient and the reliability and convergent validity of the indicators of the four dimensions of career identity meet the criteria.

Table 4

Estimation table of measurement model parameters

Second order construction	First order construction	Indicator Patterns	Item Code	Outer Loading	Cronbach's α	CR	AVE
Motivation to Teaching		Reflective			0.848	0.898	0.687
	PL	Reflective	1	0.927	0.838	0.925	0.861
			2	0.928			
	IIT	Reflective	1	0.936	0.857	0.933	0.875
			2	0.935			
teachers professional identity		Reflective			0.948	0.954	0.533
	RV	Reflective	1	0.844	0.922	0.939	0.719
			2	0.846			
			3	0.855			
			4	0.848			
			5	0.848			
			6	0.847			
	PBT	Reflective	1	0.877	0.907	0.931	0.729
			2	0.838			
			3	0.847			
			4	0.843			
			5	0.862			
	PV	Reflective	1	0.867	0.892	0.925	0.756
			2	0.858			
			3	0.869			
			4	0.884			
	PB	Reflective	1	0.875	0.854	0.911	0.774
			2	0.879			
			3	0.886			

According to Fornell and Larcker (1981); Chin (2010); Hair et al (2014), the loading of an indicator on the factor of the construct to which it belongs should be greater than the loading value of the indicator with the other constructs in the model; the square root of the AVE of each construct should be greater than the correlation coefficient of the reconstructed construct with the other constructs in the model (Fornell and Larcker, 1981). Meeting the above two conditions this indicates that the model has discriminant validity. One way to assess the existence of discriminant validity is the Fornell and Larcker (1981) criterion. To test this requirement, the AVE of each construct should be higher than the highest squared correlation with any other construct. See Table 5 for details. The results of the Fornell-Larcker test show that the square root of the AVE for each variable is greater than the correlation of that variable with the other variables, indicating that the measurement model has good discriminant validity.

Table 5

Fornell-Larcker

	PL	IIT	RV	PBT	PV	PB
PL	0.928					
IIT	0.584	0.935				
RV	0.404	0.410	0.848			
PBT	0.374	0.351	0.620	0.854		
PV	0.394	0.399	0.629	0.641	0.869	
PB_	0.400	0.365	0.618	0.601	0.602	0.880

With the data in Table 6, we can find that all the values of HTMT are less than 0.85, implying that the measurement model has good discriminant validity. A second option for verifying discriminant validity is to examine the cross-loadings of the metrics. This approach is often considered more liberal (Enseler et al., 2009) and requires that the loadings on each indicator on its construction are higher than the cross-loadings on the other constructions. With Table 7, it was found that the factor loadings on each construct were higher than the cross-loadings on the other constructs.

Table 6

Discriminant validity assessment (HTMT)

	PL	IIT	RV	PBT	PV	PB_
PL						
IIT	0.689					
RV	0.459	0.461				
PBT	0.429	0.398	0.678			
PV	0.456	0.456	0.694	0.712		
PB_	0.473	0.426	0.696	0.682	0.689	

Table 7

Cross loading

	PL	IIT	RV	PBT	PV	PB
PL1	0.929	0.537	0.376	0.340	0.372	0.369
PL2	0.927	0.547	0.373	0.355	0.359	0.373
IIT1	0.551	0.935	0.378	0.328	0.362	0.332
IIT2	0.542	0.936	0.390	0.329	0.384	0.350
RV1	0.349	0.338	0.847	0.526	0.523	0.529
RV2	0.344	0.338	0.842	0.510	0.516	0.512
RV3	0.361	0.369	0.856	0.516	0.552	0.520
RV4	0.319	0.340	0.847	0.522	0.530	0.530
RV5	0.345	0.333	0.846	0.551	0.556	0.527
RV6	0.336	0.370	0.848	0.529	0.525	0.525
PBT1	0.310	0.308	0.532	0.877	0.558	0.527
PBT2	0.324	0.300	0.522	0.839	0.552	0.480
PBT3	0.323	0.300	0.525	0.847	0.525	0.502
PBT4	0.330	0.299	0.522	0.846	0.559	0.531
PBT5	0.311	0.291	0.545	0.860	0.540	0.522
PV1	0.329	0.337	0.535	0.539	0.867	0.521
PV2	0.355	0.358	0.555	0.567	0.859	0.502
PV3	0.351	0.363	0.537	0.562	0.869	0.553
PV4	0.336	0.329	0.561	0.560	0.883	0.519
PB1	0.356	0.319	0.535	0.523	0.533	0.872
PB2	0.348	0.304	0.535	0.520	0.510	0.879
PB3	0.351	0.339	0.560	0.542	0.546	0.889

Structural Model

Before the analysis of the structural model, the covariance of the model has been diagnosed and the stage results were all met. Following the suggestion made by Hair et al (2019), we have used a bootstrap technique with 5000 samplings. In the previous discussion, we have confirmed that the covariance in this study is not severe, as all VIF values in this study are less than 5. Then the next standard assessment criteria we need to consider include the statistical significance and correlation of the path coefficients, the coefficient of determination (R^2), the assessed effect value (f^2), and the cross-validation redundancy measure Q^2 based on the blinding analysis method.

The results of the data analysis showed that the t-values of the two dimensions of motivation to teach career love and interest in teaching and the four dimensions of teachers' professional identity in the study were significant at $p < 0.05$. They did not contain 0 at both the 25% and 95% confidence intervals. This indicates that there is a positive and significant effect of the two dimensions of motivation to teach and the four dimensions of teachers' professional identity. The coefficient of determination (R^2) is a measure of the predictive accuracy of the model. It represents the combined effect of exogenous variables on endogenous variables. According to Chin (1998), the coefficient of determination (R^2) should have a value greater than 0.1. As seen in Table 8, all R^2 values were greater than 0.1. The effect size (f^2) identifies the effect size of the omitted constructs for a specific endogenous

construct, making 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively (Cohen, 1988). The results indicated that the effects of the two dimensions of motivation to teach were small in relation to the four dimensions of teacher professional identity. The redundancy of cross-validation (Q^2) is a way to assess the predictive relevance of the internal model. The larger the Q^2 , the higher the predictive accuracy of the model. The Q^2 value greater than 0 for a specific endogenous structure indicates the predictive relevance of the path model to that particular structure. As can be seen from the data in Table 8, the values of Q^2 are all greater than 0, indicating that Q^2 refers to sufficient predictive relevance.

Table 8
Hypotheses testing

	Beta	Se	T values	P	LL	UL	R^2	F^2	Q^2
IIT -> PB	0.200	0.200	4.369	0.00	0.099	0.286	0.186	0.032	0.141
PL -> PB	0.283	0.283	6.856	0.00	0.194	0.364		0.065	
IIT -> PBT	0.201	0.201	3.990	0.00	0.101	0.299	0.167	0.032	0.119
PL -> PBT	0.257	0.257	5.383	0.00	0.155	0.351		0.052	
IIT -> PV	0.257	0.259	5.486	0.00	0.167	0.350	0.199	0.054	0.148
PL -> PV	0.245	0.241	5.344	0.00	0.155	0.323		0.049	
IIT -> RV	0.265	0.266	5.534	0.00	0.179	0.358	0.210	0.059	0.149
PL -> RV	0.249	0.245	5.564	0.00	0.157	0.327		0.052	

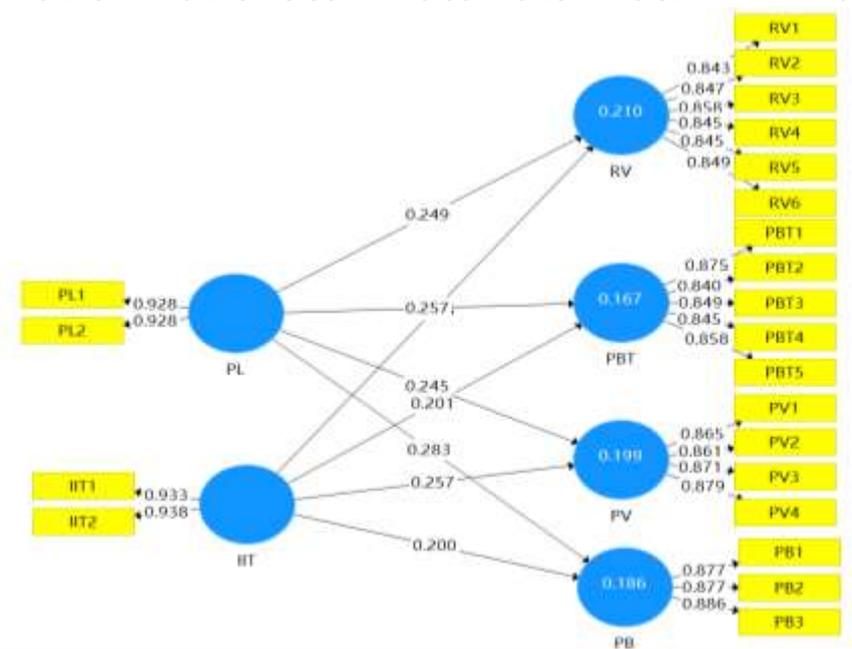


Figure 1. Hypothesis testing.

Discussion

Levels of professional identity of pre-service teachers

This study found that pre-service teachers' professional identity of teaching is at a medium to high level. This is in line with the development status of education in China as a whole and the improvement of teachers' social status. In recent years, with the implementation of the strategy of developing the country through science and education, the establishment of the priority development of education and the further implementation of

the Teachers' Law, the treatment of teachers in China has been greatly improved, and the social status of teachers has continued to improve, and accordingly, teachers' recognition of the teaching profession they are engaged in has also been increasing. In terms of the scores of each dimension, the scores of each dimension are above 3.4, which is greater than the critical value of 3.0, indicating that each dimension is at a medium to high level, which is consistent with the findings of (Wei, 2008). From the comparison of the scores of each dimension, the scores of role values > sense of professional belonging > professional values > professional behavior tendency. This indicates that the pre-service teachers consider the "teacher role" to be more important to themselves and have more positive perceptions and evaluations of the teacher role. Pre-service teachers have the lowest scores of professional behavioral tendencies, indicating that pre-service teachers have a low level of tendency to perform behaviors necessary to complete their work tasks and fulfill their professional responsibilities according to the nature and content of their work as teachers. The sense of professional belonging reflects the positive feelings and experiences of individual teachers about their relationship with their profession, and is the emotional experience that individual teachers are aware that they belong to the teaching community and often share the honor and disgrace of the teaching profession. Professional values are pre-service teachers' positive perceptions and evaluations of the meaning and role of the teaching profession. Some studies have concluded that it is possible to reform the pre-service teacher education curriculum, increase internship opportunities, and improve the internship model, which can help students change their roles and increase pre-service teachers' perceptions of the teaching profession, which in turn can increase the level of teachers' professional identity (Xu, 2021). The improvement of teachers' professional identity can promote teachers' motivation and creativity, enhance teachers' professional satisfaction, and improve teaching quality, which in turn can improve students' learning effectiveness and the overall competitiveness of the school. Therefore, the importance of teachers' professional identity cannot be ignored.

Level of Pre-service Teachers' Motivation to Teach

This study found that the mean score of motivation to teach was 4.0, which was higher than the theoretical mean of 3.0, indicating that pre-service teachers' motivation to teach was moderate to high. Teaching interest scores are higher than career love, which indicates that pre-service teachers' motivation to choose teaching career comes from their own interest in teaching profession, which is not consistent with the findings of (Guo, 2018). The reason may be that young people do not have enough time to try out the various careers they want to pursue and make career choices mostly based on their own needs and personal interests. Many pre-service teachers choose to work in education because they are enthusiastic about education. They believe that education is a very meaningful job that can contribute to society and to the growth and development of students. This love and sense of mission are important motivations for pre-service teachers to engage in teaching. The level of pre-service teachers' motivation to teach is influenced by a variety of factors, and in general, external and internal motivations have become hot topics in the field of motivation (Zhang and Guo, 2003). Some studies conclude that due to economic and socio-cultural differences, individual internal and altruistic motivation is the most dominant motivation to join the teaching profession compared to developing countries (Fokkens and Canrinus, 2012). Therefore, in the training of teacher trainees, strengthening the reinforcement and motivation of individuals can help shape their behaviors and attitudes, especially when

individuals lack the intrinsic motivation to perform a certain activity, giving external reinforcement can inspire and motivate individuals to engage in the necessary activities, which in turn can lead individuals to gain experience from the activities, improve their effectiveness, and gradually develop intrinsic motivation (Yao, 2006).

Relationship between Pre-service Teachers' Motivation to Teach and Professional Identity

This study found that pre-service teachers' motivation to teach was significantly related to teachers' professional identity, and that professional love and interest in teaching positively predicted teachers' professional identity, which is similar to the findings of (Ma et al., 2013; Zhang & Zhao, 2016). Motivation to teach as one of the important factors affecting career identity. The study of Zhang and Zhao (2015) also found that the level of professional identity was higher when the motivation to teach was higher or slightly higher than that of the general population. Individuals' motivation to teach can, to some extent, reflect individuals' professional identity and teaching beliefs about teaching. It may also predict individuals' willingness to improve themselves and burnout after they formally enter the teaching profession (Jungert et al., 2014). Teachers' motivation for teaching and learning is one of the important factors that affect their professional identity. If teachers have strong motivation for education and teaching, they will be more engaged in education and teaching, and thus are more likely to form an identification with their professional identity, professional role, professional responsibilities, and professional values, etc. Therefore, strengthening the cultivation and guidance of teachers' motivation for education and teaching can help improve their professional identity.

Conclusions and Implications

In the past, Chinese researches on the relationship between pre-service teachers' professional identity and motivation to teach have mainly focused on the free normal student group, with less attention paid to the ordinary normal student group. This study provides new perspectives and new ideas for research related to pre-service teachers' professional identity, and enriches and improves the theoretical research on the ordinary normal student group. This study analyzes a sample of 748 Chinese normal student, and the results show that pre-service teachers' motivation to teach and teachers' professional identity are at a medium-high level; pre-service teachers' motivation to teach is significantly correlated with teachers' professional identity, and professional love and interest in teaching can positively predict teachers' professional identity.

As the future mainstay of educational development, pre-service teachers influence the quality of future education and students' learning outcomes in China. Therefore, this study has certain theoretical and practical significance. Theoretically, firstly, this study can expand the theoretical systems in the fields of educational psychology and educational management, deepen our understanding of pre-service teachers' psychological states, work experiences and behaviors, and establish a foundation for further theoretical research on teachers in the field of education. Secondly, this study can provide a theoretical basis for educational policy making, helping policy makers to better understand the needs and problems of teachers and to formulate corresponding policies and measures.

In practice, first of all, it is beneficial for both individual teachers and organizational management to study the relationship between pre-service teachers' motivation to teach and teachers' professional identity in the Chinese context. This study can help schools and

educational organizations in China better understand teachers' work status and needs so that they can develop more scientific and rational management strategies and work arrangements. Secondly, it can help pre-service teachers better understand their career motivation and development direction, so that they can be prepared to improve their teaching quality, work engagement and satisfaction. At the same time, it can also provide guidance for teacher training and development, help educators better utilize their potential, improve the quality and effectiveness of education, and promote the development of education.

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