Determinants of Teacher Professional Development for Medical Universities Towards Sustainability

Lu Liu[1], Boo Ho Voon[2*], Muhammad Iskandar Hamzah[3], Jiajie He[4]

[1]Ningxia Medical University, Ningxia, China
PhD candidate, Faculty of Business and Management, UiTM Sarawak Branch
361767415@qq.com, 2021178689@student.uitm.edu.my
[2]Universiti Teknologi MARA, Kota Samarahan, Sarawak, Malaysia
bhvoon@uitm.edu.my
[3]Universiti Teknologi MARA, Shah Alam, Malaysia
iskandarh@uitm.edu.my
[4]Ningxia Medical University, Ningxia, China
568065935@qq.com
*Corresponding Author

Abstract: By exploring the relationship between organizational support and teachers' professional development, this study searched for the determinants of teachers' professional development towards sustainability in Chinese medical universities. Despite advances in the relevant literature, there is still a lack of empirical research examining the promotion of teacher professional development within the same model. After going through the literature review, the research model and research hypotheses were formulated. A quantitative investigation was also conducted and the hypothesized relationships were tested using structural equation modelling on 606 data samples. It was found that organizational support directly and significantly affects teachers' self-efficacy, professional identity and professional ideals; the findings further suggest that self-efficacy and professional ideals mediate the relationship between organizational support and teacher professional development. Whereas the direct relationship between organizational support and teacher professional development was not significant, professional identity did not play a mediating effect between them. The findings from the study guide managers to be more effective in carrying out organizational behaviors that promote teacher professional development. The study further improved managers' understanding of the relationship between organizational support and teacher professional development. Although there has been some previous causal research discussing how to promote teacher professional development. However, there have been few studies focusing on empirical studies combining individual differences, environment, and behavioral outcomes, and there is a gap, especially in the local medical university faculty population.

Keywords: Organizational Support, Professional Ideals, Professional Identity, Self-efficacy, Teacher Professional Development

1.   Introduction

In recent years, the development of science and technology and the impact of the new crown epidemic, the reform of medical education is also accelerating, teachers as one of the important subjects in education, the professional development of teachers in medical

universities has also become the key to education reform. However, at present, the professional development of teachers in Chinese medical universities is not enough to meet the new requirements, which leads to the difficulty of breaking through the quality of talent training in schools and restricts the further development of schools. Curriculum reform, teaching mode, education management, medical students' clinical practice ability and medical students' professionalism are the contents that Chinese researchers are more concerned about at present, but there is no more attention and research on teacher professional development (Chang & Pan, 2014).

Starting from the 1960s, led by Frances Fuller, the study of the stage theory of teacher professional development began. Subsequently, from the 1970s to the 1980s, American scholars Katz, Burden, Huberman, Steffy, and Berliner continuously enriched the theory of the stages of teacher professional development. Beginning in the 1990s, foreign researchers began to use quantitative research methods to study the processes and mechanisms of teachers' own changes in the course of their professional development and to explain the reasons for those changes (Wearmouth, 2003; Saman & Nouzar, 2016). However, research on teacher professional development did not become a hotspot in China until the 21st century, and most of the studies only stayed at the level of literature research, intuitive judgement or theory (Feng & Qu, 2006). This study, on the other hand, will enrich the existing research in China by building on previous studies.

Although previous research has shown that organizational support enhances employees' affective commitment to the organization and willingness to stay (O`Driscoll & Randall, 1999), reduces employee absenteeism, and increases altruistic behavior (Susskind et al., 2000), organizational citizenship behavior (Organ, 1997), work behavior (Tian & Xie, 2010), enhancement of knowledge workers' engagement (Lu et al., 2013), plays a positive role in enhancing job performance (Rhoades & Eisenberger, 2002). Lu (2013) in his study also mentioned the importance of bilateral relationships between organizations and employees. Organizational support, as one of the organizational environments, can be theoretically expected to contribute to teachers' professional development. Finding the relationship and path of action between organizational support and teachers' professional development is an important purpose of this study.

Secondly, human cognitive processes play a key role in regulating learning and behavior (e.g., Bandura, 1993; Jing et al., 2024; Siddiky & Haque, 2024). Although research has shown that self-efficacy, professional identity and professional ideals have a positive effect on individual teachers' behavior (Li, Liu, Chen & Yao, 2022; Pang et al., 2023; Zhang, 2013), However, existing studies are more homogeneous in terms of research content and research methods, and there are fewer intervention studies on how they intervene and influence the relationship between other variables. Therefore, this study takes self-efficacy, professional identity and professional ideal as individual cognitive variables to fill the gaps and shortcomings of the existing studies, and carries out the study by using them as mediating variables.

In this study, a quantitative survey was conducted to study the teachers of five local medical universities and their affiliated hospitals in Northwest China through random sampling technique. The results of this study further explain the mechanism of the occurrence of the relationship between organizational support and teacher professional development, as well as the mediating roles of self-efficacy, professional identity and career aspiration. In conclusion, this research discusses the relationship between organizational support and teacher professional development from multiple perspectives, leading the way in using empirical research to explore the mechanism of action between them. The organizational support perspective was chosen because it can guide Chinese local medical university administrators in their thinking, path selection and implementation of promoting teachers' professional development. More importantly, the study fills in and enriches existing research on organizational support, self-efficacy, professional identity and professional ideals, and provides valuable references and directions for future research.

The review of relevant literature continues next, followed by a theoretical framework and research hypotheses. Then, methodological findings are also presented. Finally, the study

concludes with a discussion that leads to conclusions, research limitations, and suggestions for future research directions.

2. Theoretical Background and Hypotheses

2.1 Organizational Support

In 1986, Robert Eisenberger, an American social psychologist, proposed organizational support theory (OST) based on the concept of social exchange, the principle of reward and the idea of organizational anthropomorphism, which in turn led to the development of the theory's core concept of perceived organizational support. The theory suggests that because the organization cares and values the employee, the employee is willing to contribute to the organization and show positive behaviors. Higher organizational support creates a strong sense of organizational identity and employees will actively work hard to improve their performance for the organization's goals and aspirations (Sun, Lu, & Sun, 2015). Organizational support theory, on the other hand, explains the interrelationship between employees and organizations from a social exchange perspective.

At the same time, Rita McMillan (1997) puts forward a different view on the source of organizational support, arguing that organizational support should not only come from the emotional needs of individuals, but that instrumental support such as equipment, resources and the environment can also enhance employees' perceptions of support. In conclusion, effective organizational support should include both emotional and instrumental support. When employees have positive organizational support, this will increase their commitment, citizenship behavior and performance.

The research on organizational support is more applied, empirical and review based. most of the studies on organizational support use quantitative research, and the studies also validate that organizational support is related to employees' work engagement (Tan, 2012), turnover intention, job satisfaction (Tan et al., 2007), organizational commitment (Li et al., 2015), job performance (Hou & Chen, 2011), innovative behavior (Gu et al., 2014), organizational trust (Liu & Li, 2011), organizational justice (Zhou & Ma, 2015). The review on organizational support is literature-based, exploring the meaning of organizational support, the progress of research (Zhou, 2009).

Some researchers have also explored the interrelationships between organizational support and other variables through structural equation modelling, meta-analytic evaluation, and experimental studies (Seung-hyun et al., 2019). Despite the wealth of existing research on organizational support and the wide range of studies, there is a gap in the research on the relationship between organizational support and teacher professional development.

2.2 Teacher Professional Development

TPD is a key research topic for educational researchers. In the 1980s and 1990s, foreign scholars have carried out research on six aspects of TPD, namely, concept, function, pathway, assessment, elements and model, with a complete system of research and rich research methods (Zuo & Wu, 2019). Research on TPD in China appeared in the 1990s, and the research fervor lasted from 1997 to 2017. In the early studies, Wang's (1997) Educational Styles and Teachers' Professional Development, and Ye's (1998) Initial Exploration of Teachers' Professionalism in the New Century served as a lead, and since then Chinese scholars have begun to conduct extensive research on TPD.

However, the status of China's theoretical research on TPD is: most of them are comparative studies and lack local theoretical model construction; empirical studies are gradually increasing, but lack representative results. From the viewpoint of research content, the research hotpots in China focus on macro research, such as teaching academics, operation mechanism, teaching reform, talent cultivation, teaching development, while the hot spots in foreign countries focus on micro research, such as curriculum, programme, attitude, teaching plan. Foreign hot research focuses on micro-area research, like attitude, care, skill, satisfaction,

satisfaction, impact, leadership, perception. In contrast, China's micro-area research needs to be further strengthened (Zhou & Xia, 2017).

In recent years, scholars have found that teachers' professional development cannot be separated from the support of the surrounding ecological environment and material energy (Gao, 2010), and that personal intention directly affects the motivation of personal development (Lu, 2021). Existing research has a single perspective, while teacher professional development is the result of behavioral interventions of multiple factors simultaneously.

Glatthorn (1995) found that individual factors, teachers' living, and working situations all affect teacher professional development. Fessler& Christensen (1992) also found that the environment affects an individual's professional development. Self-efficacy, emotional intelligence, job burnout has also been shown to affect teacher professional development (Li, 2023), and found that Professional identity (Pu, 2013), Professional spirit (Wu, 2004), burnout (Lindsey et al., 2017) are all related to teacher professional development.

Although there are also studies that take teachers in universities in the ethnic regions of western China as the research object and use structural equation modelling to study the influencing factors and their interrelationships in the professional development of teachers. Nevertheless, the study only proved that individual teacher factors positively influence TPD. The school environment has a positive impact on individual teachers and their professional development; the socio-cultural environment has a direct impact on schools and individual teachers, and an indirect impact on their professional development (Yang & Wang, 2021). It does not go into detail about how individual factors and school environmental factors affect the mechanisms of teacher professional development does not go into much detail.

Meanwhile, fewer studies have taken the group of medical university teachers as the object of study, and the existing studies are mainly based on the examination of the current status of teachers' professional development (Li, 2023), and the discussion of the practical experience from the beginning (Huang et al., 2023; Ji et al., 2021). While local medical universities, as the main place of medical education, the professional development of teachers is significantly lagging behind that of other types of universities, so it is necessary for the researcher to determine the object of the study as local medical universities.

2.3 Self-Efficacy

Self-efficacy reflects an individual's beliefs, judgements and perceptions about the level at which he or she is able to perform a particular behavioral activity (Albert, 1993). Self-efficacy is related to a person's level of personal competence, but does not represent a person's true level of competence. It determines the degree of choice, persistence and effort in behavior, and influences the pattern of thinking and emotional responses in the performance of tasks.

A number of factors known as self-efficacy information influences the formation of self-efficacy, and Bandura (1993) argues that people's self-efficacy beliefs about their own talents and abilities are largely informed by first-hand mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional states. Existing research on self-efficacy is gradually increasing in number and richness, with more studies focusing on youth and college students in recent years (Xing et al., 2023; Lin & Wang, 2023; Santhanamery et al., 2023). Studies with teachers as subjects have also centered on teacher self-efficacy (Wang & Lu, 2023). Although some studies have found that teacher engagement positively predicts self-efficacy, and that improving teacher self-efficacy is important for both teacher and student development (Li et al., 2022). However, how self-efficacy intervenes in teachers' professional development remains a topic of both theoretical and practical interest (Hao et al., 2011; Yao, 2008).

2.4 Professional Identity

In addition to individual self-efficacy, occupational identity has also become a hot research topic in various fields in recent years, and its related research results are numerous.

Professional identity research hotspots mainly revolve around the definition (Douwe et

al., 2004), status survey (Han & Wang, 2019; Yan, et al., 2023), measurement dimensions (Li & Yan, 2018), and the influencing factors (Song & Wei, 2006). Foreign studies on professional identity are more inclined to uncover the formation process of professional identity (Tahereh et al., 2022; Rajiv et al., 2022).

It was found that professional identity was positively correlated with character strengths, job reinvention, and innovative behaviors (Pang et al., 2023). Meanwhile, psychological capital and job satisfaction are the influencing factors of anesthesia nurses' professional identity (Zhang & Chen, 2023). In addition to qualitative and empirical studies, some researchers have begun to focus on the intervention research method of professional identity (Xu et al., 2019).

Professional identity is not something that a person possesses, but rather something that develops over the course of a person's life. The role of self and identity, as well as the environment, in the formation of professional identity still needs to be actively explored.

2.5 Professional Ideals

Teachers' professional ideals reflect teachers' goals and pursuits for their future work, and are the intrinsic motivation of individuals who have the will to dedicate their lives to education (Wang & Sun, 2020).

Research on career aspirations has gradually increased in recent years, but the relevant research methodology in China is still based on theoretical research, which mainly includes graduates' career aspirations, career aspirations education (Cheng & Wang, 2023), career planning (Chen, 2023), and career choice (Liu, 2023).

Foreign research on professional ideals is more in-depth, focusing on the process of forming professional ideals (Tal & Eran, 2022), and how professional ideals influence other factors (Louise Victoria et al., 2023; Signe, 2015). Research methods are also richer compared to China, with quantitative and comparative studies being commonly used in addition to theoretical studies.

2.6 Conceptual Framework and Hypotheses Development

The American scholar Albert Bandura proposed the social cognitive theory, the core of which is the triadic interaction model, which has been widely used. The core idea is that human activities are determined by the interaction of three elements: individual behavior, individual cognition and the environment in which they are located (Albert, 1986). Bandura added a cognitive component to the behaviorist theory of personality to form the social cognitive theory. The main components of this theory are ternary interactional determinism, observational learning, and self-efficacy, with ternary interactional determinism being the most important core component of the theory. Tertiary Interactive Determinism (TID) focuses on the dynamic relationship between the environment, individual, and behavior. The three factors are independent of each other and interact with each other to determine the final behavior of the subject. The external environment determines the direction and intensity of individual behavior, which in turn can be adapted to the environment through behavioral change. Social cognitive theory provides a new perspective for this study, namely that social and organizational dynamics can only motivate individual behavioral change through factors internal to the individual.

This research framework of organizational, individual, and behavioral outcomes is based on the social cognitive theory of "environment-cognition-behavior". The framework is shown in Figure 1.

Figure 1

Theoretical Framework
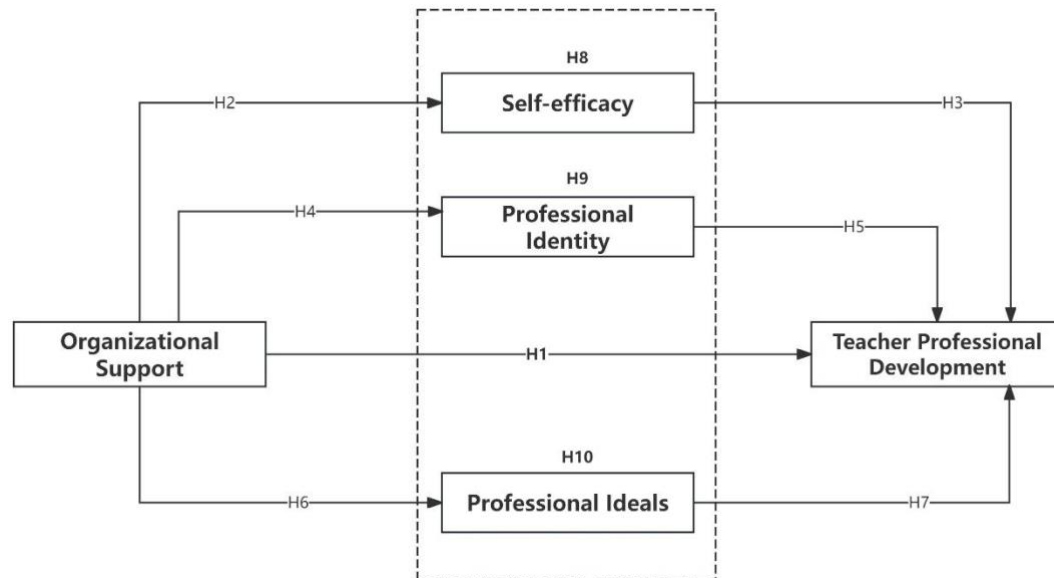
Organizations improve employees' sense of organizational support by giving them various services. According to the social exchange theory, employees with a higher sense of organizational support will return to the organization by devoting themselves to their work, which represents the organization's recognition of the employee, and can increase the individual's sense of psychological security, thus reducing negative emotions (Wang et al., 2019). Organizational support can also effectively alleviate the negative emotions of university researchers and motivate them to give positive output to the organization in return (Tian & Xie, 2010). This hence leads to the following hypotheses:

H1: Organizational support positively influences teacher professional development.

Albert Bandura defines self-efficacy as a person's belief in his or her ability to be successful at a particular task. A person's sense of self-efficacy is an important determinant of their effort, persistence, strategy development and subsequent training and job performance. Self-efficacy predicts all of a person's efforts, and organizations can use individual self-efficacy to improve performance by stimulating it.

By actively listening to employees and helping them achieve their personal goals with ownership support, organizations increase employees' emotional commitment, and their sense of belonging and identification with the organization, thereby increasing their motivation for autonomy and self-efficacy (Cui et al., 2018). This hence leads to the following hypotheses:

H2: Organizational support positively influences self-efficacy.

Teacher self-efficacy is an extension of the concept of self-efficacy, which is also seen as a key factor in explaining teacher motivation and a driving mechanism for teacher development. It is a teacher's subjective judgement and confidence in his own abilities and in the likely outcome of a particular behavior, and teacher self-efficacy is positively correlated with work engagement (Liu & Zhou, 2016). Teachers with a tendency towards external control are usually teachers with a low sense of teaching efficacy, who believe that the success or failure of teaching and student learning outcomes are influenced by external factors and are difficult to control, while teachers with a tendency towards internal control are usually teachers with a

high sense of teaching efficacy, who believe that the performance of student learning outcomes stems directly from their own teaching behaviors, and believe that as long as they make efforts they can make progress for their students(Wang & Xing, 2019). Self-efficacy is a teacher's subjective judgement and confidence in his or her ability and potential to achieve a particular behavioral outcome. This hence leads to the following hypotheses:

H3: Self-efficacy positively influences teacher professional development.
H8: Self-efficacy mediates the relationships between organizational support and teacher professional development.

Teachers' professional identity is a key part of the motivational process. Organizational support influences employees' professional well-being through professional identity. At the same time, professional identity mediates the role of organizational support in influencing knowledge workers' willingness to leave their jobs and mitigating behaviors (Jiang & Shuai, 2018). Teachers, as good employees, construct their professional identity through interaction with their environment. Therefore, changes in the organizational environment, including the level of schooling, organizational structure, and organizational management, can affect teachers' professional identity in different ways (Yu & Wang, 2011). Alignment with these arguments, the following hypotheses are proposed:

H4: Organizational support positively influences professional identity.

Teachers' professional identity has an important impact on the career development of college teachers, which affects teachers' job satisfaction (Luo et al., 2014), efficacy (Marschall, 2022), burnout (Duan et al., 2017), work pressure (Wang et al., 2017), work engagement (Yu et al., 2011), organizational identity (Zhang et al., 2013), and teaching efficacy (Sun, 2011), thus affecting teachers' professional development. Teacher professional identity further affects teachers' teaching effectiveness, their attitudes towards students, and the way they deal with behavioral problems in the classroom (Li & Yan, 2018). Some researchers have also found the same conclusion that higher professional identity promotes a sense of professional fulfilment and belonging, and promotes teachers to be more reflective and innovative in their teaching work (Xue, 2018). In alignment with these arguments, the following hypotheses are proposed:

H5: Professional identity positively influences teacher professional development.
H9: Professional identity mediates the relationships between organizational support and teacher professional development.

Intrinsic drive is a person's value orientation in the social environment. As an intrinsic drive, the professional ideal is the spiritual impetus that guides and motivates people to achieve the value of life through labour. It is directly related to teachers' sense of responsibility and well-being in their future careers and is an intrinsic motivation for their future work. The researcher defines Professional ideals as an individual's motivation to achieve in his or her future career, not in terms of the honour, status or money gained from the achievement of the aspirations, but in terms of the self-fulfillment and satisfaction that comes from the pursuit of the aspirations (Zhang, 2013). For teachers, Professional ideals are the intrinsic motivation that drives them to pursue professional development consciously, voluntarily and actively. alignment with these arguments, the following hypotheses are proposed:

H7: Professional ideals positively influence teacher professional development.

From an organizational management perspective, organizations maintain, and enhance the professional image of teachers through instrumental support, such as institutional support, logistical services, and event support. As people in different professions rely on organizations to different degrees in order to achieve their professional ideals, the study found that organizational support and environment had a significant impact on doctors' sense of

professional mission (Wang & Zhang, 2019). The organization creates a positive environment for teachers, which helps them to realize their professional ideals, and in the process of realizing these ideals; it strengthens their trust and loyalty to the organization, which in turn strengthens their sense of identity with the organization (Zhang et al., 2013). Alignment with these arguments, the following hypotheses are proposed:

H6: Organizational support positively influences professional ideals.
H10: Professional ideals mediate the relationships between organisational support and teacher professional development.

3.   Methodology

3.1   Research Instrument

In this study, data were collected mainly by means of a questionnaire. The quality of the questionnaire design has a direct impact on the accuracy and validity of the results, and the questions were designed in an understandable way without using words or concepts that are prone to ambiguity.

The questionnaire had a total of 45 items and 7 basic demographic questions. The study used a five-point rating scale to measure the used items where one=strongly disagree, and five=strongly agree. The survey scales were all well-established scales used and validated by previous researchers. The first part of the questionnaire is basic information such as gender, age, teaching experience, position, and educational background. The second part is the teacher professional development scale (Wang, 2018). The third part is the self-efficacy scale (Xu, 2018), professional ideas scale, professional identity scale (Pan, 2014). Part 4 is the perceived organizational support scale (Ding, 2018).

3.2   Sampling Techniques and Procedures

Chinese universities are divided into two categories according to their organizational affiliation. First, universities for which the central government is primarily responsible for management. The other is the local university, which is under the jurisdiction of the local government and is mainly funded by the local treasury. Local medical universities are co-established by the Ministry of Education and the local government. They are an essential part of medical higher education in China.

Northwest China refers to the provinces of Shanxi, Gansu and Qinghai, as well as the Ningxia Hui Autonomous Region and the Xinjiang Uygur Autonomous Region. Due to environmental and historical reasons, Northwest China is an underdeveloped region with a weak economic foundation, a small population, and a regional industrial output value that accounts for only 5.84% of the country's total. Moreover, the development of higher education in Northwest China lags behind that of the rest of the country.

There are five local medical universities in five provinces in Northwest China. The sample size is determined by the total number of employees (i.e. number of employees between 10 and 100). This sampling technique provides an adequate representation within the study population (Zikmund et al., 2012), The total number of teachers was obtained from the data published on the official website of the university as 6248, so the sample size should be at least 624. In structural equation modeling studies, the results of analysis are unstable when the sample size is less than 100; in general, the information meets the specification when it is greater than 200, and there are no missing or exceptional values. The minimum sample size is 5 times the estimated parameters, and 10 times is appropriate (Tenko & Keith, 1995). There are 45 observational measures in this study, and a sample size of 450 or more is more appropriate.

In the end, 730 questionnaires were distributed, 676 were returned, 70 invalid questionnaires were deleted (insufficiently conscientious completion rate, a single level selected for the extent of all measurement questions, inconsistent answers, and deletion of the "other" section for which no data were available), and 606 valid questionnaires were returned.

In order to minimize possible bias in random sampling, the survey was conducted at different times of the day and participation was voluntary for all respondents.

3.3   Data Analysis Technique and Procedure

Structural equation modeling is a method of validation research in which structural equation modeling is used to verify whether the theoretical model assumptions are reasonable, rather than using it to discover a suitable theoretical model (Wang et al., 2015). In this study variables cannot be directly measured, so observable indicators are needed. Traditional statistical methods cannot effectively deal with these observable indicators. Structural equation modeling is mainly used to study the relationship between latent variables and measurable variables and the relationship between multiple latent variables.

This study mainly used SPSSAU, and AMOS26 for data collation, statistics and analysis. SPSSAU, as the web version of SPSS, has been used by more and more researchers for data analysis in recent years (Wang et al., 2020 ; Shi et al., 2021).

4.   Analyses and Results

4.1   Demographic Information

The basic information of the six hundred and six (606) teachers who participated in this study is shown in Table 1. There are more female teachers than male teachers among the studied teachers, which is in line with the current ratio of male and female teachers in the Chinese university teaching community. Most of the studied teachers are 31-40 years old, followed by 41-50 years old. There are 233 master's degree holders, accounting for 38.4%, and 142 doctoral degree holders, accounting for 23.4%. The total number of people with master's degrees or above accounts for 61.8%, and 57.9% of them are teachers with senior titles. Their teaching experience was relatively balanced, with 26.6%, 24.8% and 25.6% of the group having less than 5 years, 5-10 years and 10-20 years of teaching experience, respectively.

The research subject belongs to medical universities, so the subject distribution of the sample is 64.5% medical and 25.4% science, where science is the basic course of the medical curriculum, math, physics, chemistry, and biology all belong to the science category. The above information implies that the distribution of the research sample is more in line with the sample as a whole.

At the same time, the group of faculty members who are primarily engaged in the profession of physicians and who are responsible for teaching in practice accounts for 55.4% of the total. Thirty-four percent of the teachers had received systematic and professional teacher education before joining the profession, while 64.2% of the teachers had no professional education for the teaching profession, and 1.8% of them had had training experience in the area of improvement of teachers' teaching skills.

Table 1

Demographic Characteristics of the Sample

Items	Category	Numbers	Percentage (%)
Gender	Male	194	32
	Female	412	68
Age	25~30	42	6.9
	31~40	234	38.6
	41~50	226	37.3
	51~60	104	17.2
Qualifications	Junior college	8	1.3
	Undergraduate	223	36.8
	Master	233	38.4
	PhD and above	142	23.4
Teaching experience	Under 5 years	161	26.6
	5-10 years	150	24.8
	10-20 years	155	25.6
	20-30 years	98	16.2
	Over 30 years	42	6.9
Title	Junior	65	10.7
	Intermediate	186	30.7
	Associate	195	32.2
	Senior	156	25.7
	Others	4	0.7
Main tasks undertaken	Teaching	195	32.2
	Administration	75	12.4
	Doctor	336	55.4
Subject	Arts	45	7.4
	Science	154	25.4
	Engineering	12	2
	Medicine	391	64.5
	Others	4	0.7
Education	Yes	206	34
	No	389	64.2
	Others	11	1.8

4.2   Manipulation Checks

Firstly, the skewness and kurtosis are taken to determine the normality of the data, and the closer the absolute value is to 0, the more it conforms to the normal distribution. The normality test is strict and usually cannot be met, if the absolute value of the kurtosis is less than 10 and the absolute value of the skewness is less than 3, then the data, although not absolutely normal, is basically acceptable as a normal distribution (Kline, 2005). The kurtosis and skewness of the observed variables were tested to be within the permissible range and the data were accepted as normally distributed for further analysis.

Secondly, since the data collected were self-reported by the participants, common method bias may be present, thus affecting the validity of the findings. In order to check for the presence of common method bias, this study employed common method bias (CMB) based on Harman's (1976) one-way test (Podsakoff & Organ, 1986). Calculations aided by the AMOS26 software revealed that the model fit index was not significantly improved assuming that the single factor explained the variance of all variables. The test methods regarding common method bias are inherently subject to a certain amount of error, and although a certain amount of common method bias was unavoidable in this study, the results of the test only indicate that these biases did not significantly affect the results of the study.

4.3 Assessment of the Measurement Model

Firstly, the applicability test. The applicability test was conducted on the five variables of the study, in which the KMO test value was 0.846 and the significance of the X^2 statistic value of the Bartlett's sphere test was $p<0.05$, which indicated that the feasibility criteria of principal component analysis were fully met.

Secondly, the reliability test of the model. The model was tested for reliability using the Cronbach's alpha coefficient of greater than 0.7, which is widely used by researchers, and the Corrected Item-Total Correlation (CITC) value of not less than 0.5, and the results are shown in Table 2. The five variables of the model were organizational support, self-efficacy, professional identity, professional ideals, and teacher professional development. The Cronbach's alpha coefficients for each of the constructs were greater than 0.9, and the CITC values were above 0.5, indicating that the questionnaire had high reliability.

Finally, model convergent validity and discriminant validity were tested. That is, the measurement model was subjected to a confirmatory factor analysis. The standardized factor loadings for all measurement dimensions were greater than 0.6 and showed significance, implying a good measurement relationship. The Composite Reliability (C.R.) values were all higher than 0.7, and the Average Variance Extracted (AVE) values were all greater than 0.5.

The results according to Table 2, , and the data all met the criteria (Hair et al., 2011): factor loadings must be greater than 0.5, component reliabilities must be greater than 0.6, and AVEs must be greater than 0.5. Therefore, the model has good convergent validity.

Table 2

Reliability and Convergent Validity Analysis of Measurement Models

Factor	AVE	CR	Cronbach's α	CITC
TPD	0.636	0.874	0.916	0.693
SE	0.676	0.912	0.907	0.767
PI	0.793	0.95	0.903	0.838
PIS	0.852	0.958	0.907	0.796
OS	0.835	0.91	0.896	0.794

OS Organizational Support, *SE* Self-efficacy, *PI* Professional Identity, *PIS* Professional Ideals, *TPD* Teacher Professional Development

The results of the discriminant validity are shown in Table 3, in this test of discriminant validity, the standardized correlation coefficients between each of the variables are less than the square root of the AVE values corresponding to the variables, Therefore, appropriate discriminant validity of the measurement model is achieved.

Table 3

Results of the Discriminant Validity

Variables	TPD	SE	PI	PIS	OS
TPD	0.797				
SE	0.651	0.822			
PI	0.643	0.717	0.890		
PIS	0.745	0.755	0.792	0.923	
OS	0.541	0.596	0.701	0.571	0.914

Slant diagonal numbers are AVE values, *OS* Organizational Support, *SE* Self-efficacy, *PI* Professional Identity, *PIS* Professional Ideals, *TPD* Teacher Professional Development

4.4   Structural Model Evaluation

4.4.1   Evaluation of Overall Model Fitness

Table 4 shows the details of the main fitness indicators for the structural model. After comparing with the given recommended values, the fitted values of all the fitness indicators fall within the recommended range, except for the GFI value which is very close to the recommended value of 0.9. It can be seen that the setting of this theoretical model is acceptable.

Table 4

Model Fitting Test Results

Norm	GFI	RMSEA	RMR	CFI	NFI	SRMR	TLI
Standard of Judgement	>0.9	<0.10	<0.05	>0.9	>0.9	<0.1	>0.9
Fitted value	0.817	0.093	0.039	0.928	0.916	0.051	0.916

4.4.2   Results of Testing the Research Hypothesis

According to the results of the analysis in Table 5, it can be seen that in the path hypothesis relationship of this study, the effect of organizational support on teacher professional development is not significant ($\beta=0.081$, $p>0.05$), therefore hypothesis H1 is not supported. The effect of professional identity on teacher professional development is not significant ($\beta=0.004$, $p>0.05$), therefore hypothesis H5 is not supported. At the same time, OS has a positive impact on SE (H2:$\beta=0.635$, $p<0.001$), PI (H4: $\beta=0.73$, $p<0.001$), and PIS (H6: $\beta=0.585$, $p<0.001$). SE has a positive impact on TPD (H3: $\beta=0.254$, $p<0.001$), PIS has also a positive impact on TPD (H7: $\beta=0.541$, $p<0.001$).

Table 5

SEM Path Relationship Test Results

Hypothesis	Pathway Relationship			Estimate	S.E.	T	P	Supported
H1	TPD	<---	OS	0.081	0.033	1.387	0.165	NO
H2	SE	<---	OS	0.635	0.034	14.585	***	YES
H3	TPD	<---	SE	0.254	0.032	5.863	***	YES
H4	PI	<---	OS	0.730	0.037	19.087	***	YES
H5	TPD	<---	PI	0.004	0.027	0.080	0.936	NO
H6	PIS	<---	OS	0.585	0.033	15.105	***	YES
H7	TPD	<---	PIS	0.541	0.030	12.055	***	YES

* p<0.05 ** p<0.01 *** p<0.001, *OS* Organizational Support, *SE* Self-efficacy, *PI* Professional Identity, *PIS* Professional Ideals, *TPD* Teacher Professional Development

Figure 2

SEM Modelling and Path Coefficients
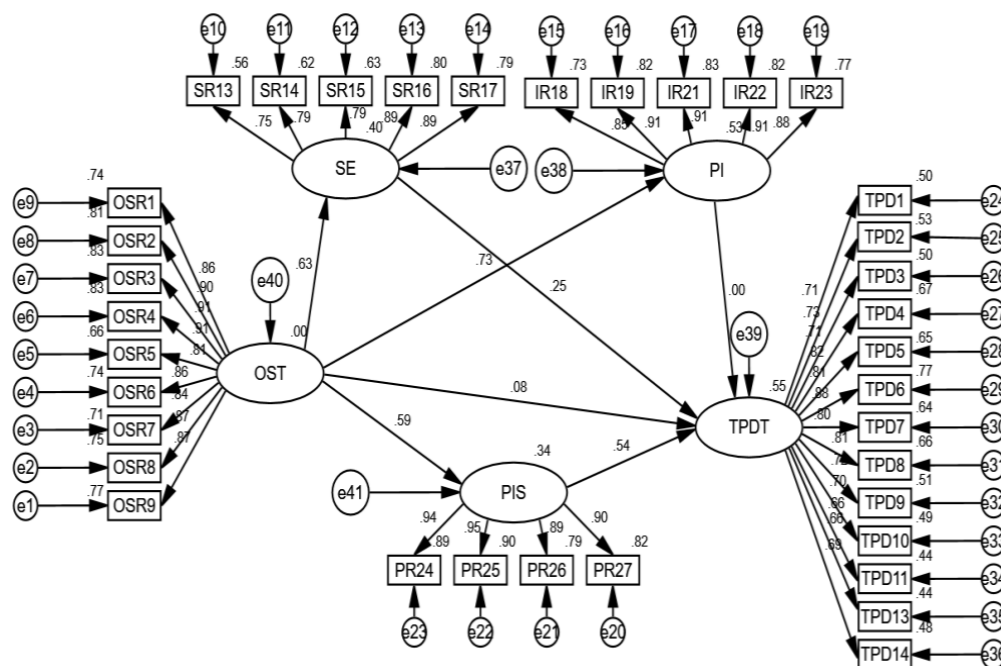
4.4.3 Mediation Effect Test

Researchers have verified that the Bootstrap method outperforms the Multiplicative Distribution Method and the Sobel Test (Chenet al., 2013; Fanget al., 2012; Selig & Preacher, 2009; Wen & Ye, 2014), so this study will use the bootstrap method for mediation effect testing.

The validation results are shown in Table 6. The 95% confidence interval is judged by whether it includes the number 0. If the 95% confidence interval does not include the number 0, the mediation effect is significant; if the 95% confidence interval includes the number 0, it is not significant.

The data show that the indirect effect of self-efficacy on organizational support and teacher professional development is significant (indirect effect is=0.092, 95% lower bootstrap CI=0.07, upper bootstrap CI=0.046, $p<0.05$). The indirect effect of professional ideals on organizational support and teacher professional development is significant (indirect effect is=0.18, 95% lower bootstrap CI=0.094, upper bootstrap CI=0.291, $p<0.05$). The total effect was also significant (total effect=0.32, 95% lower bootstrap CI=0.215, upper bootstrap CI=0.441, $p<0.05$). Therefore, there is a mediating effect of self-efficacy and professional ideals on organizational support and teacher professional development, which is supported by hypothesis 8 and hypothesis 10 and not supported by hypothesis 9.

Table 6

Mediation Effect Test Results

Parameter	Pathway Relationship	Estimate	Lower	Upper	P
Direct Effect		0.046	-0.007	0.101	0.082
Indirect Effects 1	OS-SE-TPD	0.092	0.046	0.154	0.001
Indirect Effects 2	OS-PI-TPD	0.002	-0.067	0.067	0.967
Indirect Effects 3	OS-PIS-TPD	0.18	0.094	0.291	0.001
Total Effect		0.32	0.215	0.441	0.001

5.   Conclusion and Implications

This study discusses the relationship between organizations and teacher professional development mainly from the perspective of organizational support. It also highlights the factors that directly or indirectly influence teacher professional development; in particular, organizational support does not have a direct impact relationship with the outcome of teacher behavior: teacher professional development.

Tian (2010) also found that organizational support could indirectly influence employees' work behaviors by playing the mediating role of psychological capital. Research by Australian scholars Behl and Menguc (2002) also suggests that perceptions of organizational support do not have a direct effect on organizational citizenship behaviors, but rather indirectly influence employees' organizational citizenship behaviors by acting as a mediator of organizational identity. These are similar to the findings of this study that organizational support does not directly influence teacher professional development.

Secondly, the study further showed that organizational support had a significant effect on self-efficacy, professional ideals and professional identity, a finding that is consistent with past research findings. The findings show that teachers' self-efficacy, professional identity and professional ideals are dependent on the organizational context, especially their perceived organizational support. This suggests that teachers with higher perceptions of organizational support will have higher endogenous motivation.

The results of the study showed that self-efficacy have a direct impact on TPD. Professional ideals have a direct impact on TPD, and professional identity has no direct impact on teacher professional development. The study further supports the idea that teachers with higher self-efficacy and professional ideals exhibit more behaviors that contribute to the promotion of teacher professional development. While professional identity is the psychological foundation of professional development, it is a complex, dynamically balanced process with diversity. In their study, Song and Wei (2006) found that teachers' gender, title, and professional motivation all influence professional identity.

On this basis, the study further found that professional ideals and self-efficacy mediated the relationship between organizational support and teacher professional development, and that professional identity did not mediate the relationship between organizational support and

teacher professional development. The results of the study show that the sense of organizational support focuses on the dedication and support of the organization to the individual and puts more emphasis on the feelings of the individual, so the key to the effects on individual behavior, is whether these effects cause a change in the individual's behavior or not, which is consistent with the results of previous studies.

However, past research has referred to professional identity as an important psychological basis for teacher professional development, and through this empirical study, it has been shown that professional identity does not directly influence teacher professional development and does not play an intermediary role between organizational support and teacher professional development. Some researchers have emphasized that teachers' professional identity is influenced by individual experiences, upbringing, self-reflection, and self-evaluation (Beijaard et al., 2004). At the same time, it has also been found that professional identity and burnout, through the role of chain mediators, can affect an individual's job satisfaction (Chen et al., 2023). Combined with the findings of this study, it certainly brings another direction to the study of professional identity.

5.1   Theoretical Implications

This study enriches and improves the social cognitive theory, promotes the application of the social cognitive theory in the professional development scenario of university teachers, and also uncovers the factors affecting the professional development of teachers, filling the gaps of the previous studies on teachers' professional development.

Although research on organizational support has received considerable attention from researchers, most of the studies are only based on theories and reviews of personal opinions, with more theoretical studies in the research methodology. At the same time, there have been more studies on organizational support outcome variables in relevant empirical studies, but the mechanism of interaction between them and specific outcome variables has not been explored in depth. As organizational support is a social exchange relationship, this study explores the theory of organizational support at a deeper level from an organizational perspective and an individual perspective, in terms of demand and supply from both organizations and individuals. This study not only enriches the research on organizational support, but also provides an initial exploration of the mechanism of action between organizational support and teacher professional development through empirical research.

Secondly, the study once again validates the positive effects of self-efficacy and professional ideals on individual behavior. It enriches the research field of self-efficacy, professional ideals, and professional identity, and adds new research perspectives to the field of individual psychology-behavior relationship. For the first time, it was found that professional identity does not act directly and indirectly on teachers' professional development, which is also one of the contributions of this study.

5.2   Practical Implications

Social and organizational motivators can only stimulate an individual's innovative behavior in an organization if they work through the individual's endogenous factors. This study can give theoretical support to the organizational management of the administrators concerned, especially in terms of how to promote teachers' professional development. The organization is conducted and supported in terms of how to improve teachers' self-efficacy and professional ideals as an entry point.

Combined with the findings of the study, the following organizational management recommendations are made:

Organizations can help teachers to learn continuously, update their knowledge of educational theories and teaching methods, and enhance their professional knowledge through measures such as establishing medium and long-term teacher training programmers and building a platform for teachers to exchange ideas and learn from each other. Teachers can further understand their strengths and weaknesses through in-depth exchanges with others, and

improve their teaching in a targeted manner. All these initiatives can help teachers to better cope with the challenges of teaching and thus enhance their self-confidence and sense of efficacy.

To promote teachers' professional ideals by enhancing their self-identity and building a positive and innovative organizational culture. Teachers' self-identity is based on their understanding of the significance of the teaching profession, and the social prestige and status of the profession influences their identity. Organizational culture is an important organizational environmental factor, which can influence employees' psychological identification with the organization through the organization's ambient environment, which in turn improves employees' work commitment and behavior.

6. Suggestions

Restricted by the conditions of the malefactor, the time of the malefactor and the level of the author's malefactor, there are some deficiencies in the malefactor, which are mainly manifested in the following aspects:

The impact brought by the research data, although all of this study chose to use the more mature scale, but the process of the questionnaire mainly used self-assessment to collect data, by the individual self-exaggeration and social expectations factors, the data collected may have the consistency of the homologous data contamination.

The impact brought by the sample itself, due to the limited time, energy and money, in order to get the most convenience out of the limited resources, this study has been facing the contradiction between the ideal and the reality in the process of choosing the sample, and in the end, it just chooses the random sampling method. The sample itself may form another limitation of this study.

Teacher professional development plays an important role in promoting reforms in medical education. Although this study has explored the promotion of teachers' professional development and achieved some theoretical and practical experience. However, comparing the shortcomings of the study, future researchers can also be carried out in the following aspects:

Enriching research methods to include long-term tracking studies and comparative research methods. Attempts are made to conduct tracking surveys and experiments across time periods, which can reveal patterns of change and long-term effects among variables.

Research on the mechanism of the role of professional identity and teachers' professional development, which could not be analyzed in depth in this study, could be considered to include the research theme of organizational commitment to continue professional identity.

7. Co-Author Contribution

The authors declare that there is no conflict of interest in this paper. The initiation and design of this study was a joint effort of all authors. The first author conducted the literature review, analyzed the data and drafted the manuscript. Afterwards, the second author played an important role by critically editing the article to ensure its integrity.

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