

THE RESEARCH OF THE RELATIONSHIP OF THE FAMILY-LIKE EXCHANGE AND UNIVERSITY TEACHER'S PROFESSIONAL DEVELOPMENT *

Li Yi

Panyapiwat Institute of Management,
Thailand
E-mail: 22551457@qq.com

Abstract

In the process of "quality" transformation in Chinese universities, teachers are the key. Improving the professional development level of universities' teachers is a long-term mechanism for the development of universities. Therefore, universities should explore various ways to promote the continuous development of teachers' professional level.

This paper took public universities as the research object, based on the perspective of family-like exchange, and takes the sense of organizational belonging as the intermediary to explore the relationship between family-like exchange and teachers' professional development.

This paper collected data by questionnaire, and verified the influence mechanism of family-like exchange and teachers' professional development by correlation analysis and regression analysis.

It is found that there is a significant positive correlation between family-like exchange and teachers' professional development level at the level of 0.01, the correlation coefficient between family-like exchange and teaching level is 0.575, and the correlation coefficient with research level is 0.454. The results showed that family-like exchange has a significant positive correlation with teachers' professional development. At the same time, through the test, it is found that the sense of organizational belonging plays a mediating role between family-like exchange and teachers' professional development.

Keywords: family-like exchange, university teachers, professional development, sense of organizational belonging

Introduction

Research background

China's higher education has entered a stage of connotative development based on quality development. The main body to realize this transformation is university teachers. To promote the reform of higher education, we must find out the characteristics and laws of university teachers' professional development and explore the key factors affecting their professional development.

Realistic background

On the one hand, the rapid development of higher education needs the professional development of teachers. Since 1999, China has opened the road of higher education enrollment expansion. Up to now, China's higher education has entered the stage of popularization, creating a miracle of large education in poor countries. In the rapid development of higher education, the pursuit of quantitative growth, lack of attention to connotation development, the quality of higher education is difficult to be effectively guaranteed. To realize the "qualitative" change, this is not only the problem solved by higher education, but also the key to China's transformation from a large country of higher education

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to a powerful country of higher education. To realize this change, the professional development of university teachers is a key.

On the other hand, teachers' career development requires continuous professional development. For teachers, not only teachers need to have rich professional knowledge and solid teaching level, but also teachers need to have corresponding academic level. In the current reality, there are still various problems in university teachers, such as teachers' knowledge structure is relatively single, teachers' teaching level and research level are low, which can not meet the requirements of the current high-quality development of higher education, and many teachers lack the awareness of professional development and so on.

Theoretical background

In 1933, Carl Sanders, a famous British sociologist, put forward the concept of "teacher specialization". The theme of the world education yearbook in 1963 was also "education and teacher training", and the concept of "teacher professional development" was selected as its theme in the world education yearbook in 1980. It can be seen that teachers' professional development has always been emphasized and valued by international educational organizations.

At present, the research on the professional development of university teachers is mainly reflected in the connotation, influencing factors and development ways of university teachers' professional development.

In the current research, although it is more comprehensive to explore the ways of university teachers' professional development from the aspects of society, universities and individual teachers. However, at the university, it is more focused on how to support teachers' professional development through specific measures in teaching and research, rather than how to improve university teachers' professional development by establishing a good working atmosphere.

This research gap provides the possibility for this study.

Research Objectives

In this study, the family-like exchange is used in universities, and a new way of university teachers' professional development is sought from the perspective of family-like exchange. Through interviews and questionnaires, we understand the current situation of family-like exchange, teachers' sense of belonging and teachers' professional development in universities. Through data analysis, find out the relationship between the three, and put forward the countermeasures to improve teachers' professional development from the perspective of family-like exchange.

Related Literature Review

Research on teachers' professional development

Research on teachers' professional development abroad

Research on the professional development of university teachers abroad mainly focuses on two aspects.

On the one hand, it researches on the content of university teachers' professional development. Toombs (1976) pointed out that university teachers' development includes curriculum development, professional development and organizational development. Gaff (1994) for the development of university teachers, including teaching development, personal development and organizational development. Crow (1976) is different from other people who

hold a single professional role in teacher's development. He believes that university teachers' development includes the all-round development of the whole person as a social person, professional and academic member. Boyer (1990) put forward a multidimensional academic view on the development of university teachers. The academic of university teachers should include inquiry academic, integrated academic, applied academic and teaching academic.

On the other hand, it researches the strategies of university teachers' professional development. William H. Berquist and Steven R. Phillips (1975) put forward the development model of university teachers. It emphasizes the concept of "community development", and holds that the development of university teachers needs the recognition and support of the external institutional environment.

Research on professional development of domestic university teachers

The domestic research on the professional development of university teachers mainly focuses on three aspects.

The first is the theoretical analysis of teachers' professional development. This kind of research analyzes the evolution process of teachers' professional development in detail. Ma Qin (2020) believes that the essence of teacher professional development is a gradual process from "teacher training" to "teacher education" to "teacher development". It can be seen that teachers' professional development is a continuous process of teachers' cultivation.

The second is to research the connotation of university teachers' professional development. This kind of research mainly analyzes the content of university teachers' professional development. Pan Maoyuan believes that teachers' professional development includes three levels: one is to have the discipline professional level corresponding to the identity of scholars; Second, teachers should have professional knowledge and skills corresponding to their dual identity; Third, they should have special professional ethics corresponding to the dual identity of scholars and teachers. Yuan Li, Cai Kun, Li Fang (2020) believes that the connotation of teachers' professional development in local universities includes four interrelated and interactive whole: development objectives, development process, development model and development mechanism.

The third is the related research on the influencing factors and paths of university teachers' professional development. Bian Xiangrui (2020) believes that the influencing factors of teachers' professional development include teachers' personal level, university environment level and social environment level. The professional development of university teachers needs to fully mobilize the resources and strength of society, universities and individual teachers, and coordinate and cooperate in many aspects, which is a powerful measure to ensure the professional development of university teachers. Wang Minghua (2019) believes that the factors affecting teachers' professional development include personal factors and external environment. It also puts forward the ways to promote the professional development of foreign language teachers in universities from the internal and external influencing factors. Wang Li, Qin Jicui (2020) and others have studied that from the academic perspective, the path of university teachers' professional development has four aspects: concept level, system guarantee, internal power and universities. From these four aspects, we can improve teachers' teaching academic level and promote teachers' professional development.

At present, scholars have discussed the professional development of university teachers from different aspects. At present, there are few studies on promoting teachers' professional development by creating a good working atmosphere from the perspective of university environment. Therefore, this study discusses the dynamic changes of university teachers'

professional development from the perspective of the relationship between teachers and organizations in universities.

Research on family-like exchange

In recent years, Chinese scholars began to pay attention to the research of family-like exchange. At present, the research on family-like exchange mainly focuses on two aspects: one is the relationship between family-like exchange and Chinese culture, and the other is the influence of family-like exchange on organizations.

Relationship between family-like exchange and Chinese culture

In Chinese culture, there is an interdependent value orientation with family relationship as the core, which shows compliance with ethics and human feelings rather than contract spirit. In the background of Chinese culture, there is a kind of family-like exchange relationship similar to the way of getting along with relatives in the organization. Based on this, Zhu Suli, Long Lirong, He Wei and Wang Zhongjun (2015) proposed and verified that in the employee-organization relationship of Chinese enterprises, there are not only contractual and instrumental economic exchange and social exchange, but also family-like exchange relationship that can reflect the high integration of employees and organizations.

Wu Kunjin (2015) pointed out in his research that under the background of western culture, the management mode emphasizing economic exchange and contract can not adapt to the management thought and purpose of establishing ethical and emotional relationship between enterprises and employees in China. The human resource management rooted in Chinese cultural background is considered to be a management method with modern value because it reflects social, cultural and emotional factors. This kind of paternalistic human resource management is a way of getting along between the organization and employees, which is similar to that between relatives, and the two sides have close emotional ties. This kind of research is to explore that family-like exchange is a unique employee-organization relationship under the background of Chinese traditional culture.

Influence of family-like exchange on organization

Social exchange theory emphasizes the balance between giving and receiving. However, under the background of Chinese traditional "family" culture, this theory can not well explain the phenomena such as: the little help brings much return, you respect me and I respect you. Therefore, some scholars have conducted empirical research on the role of family-like exchange on organizations, and confirmed the various effects of family-like exchange on organizations under the characteristics of Chinese culture.

Tan Chunping and Gao Huiping (2018) studied the relationship between family-like exchange and organizational commitment. The empirical results show that the family-like exchange relationship has a positive influence on emotional commitment and normative commitment, and a negative impact on economic commitment.

Tan Chunping, Chen Xiaoxiao and Wang Ye (2019) also studied the relationship between family-like exchange and organizational commitment between employees and organizations under the background of family culture. The research shows that family culture, demand, support, trust and communication have a positive impact on the family-like exchange relationship between employees and organizations, while the impact of interests on the family-like exchange relationship is not significant.

Wu Gaobo, Liu Xiaocong and Jiang Xiujuan (2019) studied the impact of family-like exchange relationship on employees' turnover intention. The empirical results show that: (1) family-like exchange relationship has a significant negative effect on the interpersonal and

developmental dimensions of turnover intention and psychological contract violation; (2) The three dimensions of psychological contract violation (normative, interpersonal and developmental) have a significant positive effect on turnover intention.

These studies have shown that family-like exchange has a positive impact on employees' work attitude and behavior. The improvement of family-like exchange level in the organization can effectively improve employees' work attitude and enthusiasm, and predict work performance.

At present, the research perspective on such family-like exchange is also relatively rich, which provides a basis for the development of this study, but the present research is mainly concentrated in organizations such as enterprises, and there is almost no research on institutions such as universities. Universities not only have employee-organization relations similar to enterprises, but also have their own management and operation characteristics. The particularity of university teachers determines that the characteristics of family-like exchange relations in such organizations can be more obvious. Therefore, the blank spot in the present research of family-like exchange also provides a new thinking direction for the development of this study.

Research on the sense of organizational belonging

At present, Chinese scholars' research on the sense of organizational belonging focuses on three aspects: one is to study the connotation and influencing factors of the sense of organizational belonging; The second is to study the impact of employees' sense of belonging on enterprise performance; The third is to study how to measure employees' sense of organizational belonging.

The connotation and influencing factors of sense of belonging

Liu Xiaoping (2002) defined the sense of organizational belonging as that employees emotionally identify with their own enterprise or organization and are willing to pay and bear corresponding responsibilities for the enterprise or organization. Pu Qingping and Gong Li (2007) believe that the sense of belonging can be formed when employees identify with the enterprise not only on the surface, but from the heart. The sense of organizational identity that is willing to stay in the organization is the sense of organizational belonging.

Zhang Jiangbo (2017) believes that social status, welfare benefits, professional role positioning, career planning and other aspects affect preschool teachers' sense of professional belonging. Zheng Qin (2011) pointed out: Generally speaking, the factors affecting the formation of sense of belonging mainly include: effective communication, fairness, innovation, leadership demonstration, corporate image, interpersonal relationship and so on.

The impact of sense of belonging on enterprises

In his master's thesis, Chen Wen (2013) found that there was a significant positive correlation between employees' sense of belonging and job performance and the correlation level of each factor. Employees with a strong sense of organizational belonging have a stronger sense of identity with the organization, are more dedicated, take the initiative to build a interactive relationship with colleagues, and establish a team spirit, which can better stimulate employees' work enthusiasm and investment.

Yuan Qiwei (2020) studied the relationship between the sense of belonging, loyalty and organizational performance of knowledge employees in cross-strait science and technology enterprises, and believed that the sense of belonging of enterprises can guide employees to form a virtuous development cycle model of "enterprise sense of belonging-employee loyalty-

serving the enterprise-improving performance". There is a positive correlation between corporate belonging and organizational performance.

Measurement of organizational belonging

Chinese and foreign scholars have done some research on the measurement of teachers' sense of organizational belonging, but due to the differences between Chinese and foreign national conditions, learning from foreign scales is easy to have an adverse impact on the accuracy and credibility of the measurement. Many domestic adapted or self-made scales have not been strictly tested and revised, and the quality is uneven.

Liu Lin (2015) discussed the theory, definition and influencing factors of university teachers' sense of organizational belonging, summarized and analyzed the measurement tools of university teachers' sense of belonging at home and abroad, and designed a set of questionnaire to measure university teachers' sense of organizational belonging.

In the research on the relationship between sense of belonging and job performance, although the intermediary variables selected in the current research are different, the current research has proved that there is an obvious positive correlation between employees' sense of belonging and job performance. The conclusion of the study provides a reference for the development of this study.

Research Methodology

1. Research object

This study takes the teachers who should undertake both teaching and research tasks in China's public universities as the research object.

2. Research methodology

This study uses the methods of questionnaire and interview to understand the family-like exchange level, sense of organizational belonging and teachers' professional development of the surveyed teachers' in China. On this basis, the relationship between the three is analyzed by using SPSS, Amos and other data statistical methods.

3. Data collection

The questionnaire of this study is divided into three parts: family-like exchange questionnaire, sense of organizational belonging questionnaire and teacher's professional development questionnaire. 80 questionnaires were distributed for preliminary test, revised after test, and then 300 questionnaires were distributed for formal test.

Family-like exchange questionnaire: Based on the questionnaire in Tan Chunping's research and combined with the reality of this study, the questionnaire is revised to form 10 questions. Through analysis and test, all 10 questions in the questionnaire are retained.

Sense of organizational belonging questionnaire: Based on the questionnaire designed and developed by Liu Lin and combined with the reality of this study, the questionnaire is revised to form 9 questions. Through analysis and test, all 9 questions in the questionnaire are retained.

Teachers' professional development questionnaire: Teachers' professional development questionnaire based on the teaching level questionnaire of university teachers developed by Jinli and the research level questionnaire of university teachers developed by Liu Hong. Based on the above questionnaire and the reality of this study, this study revises the questionnaire. The teacher's teaching level questionnaire formed 7 questions, and 5 questions were retained after testing. The questionnaire of teachers' research level formed 6 questions, and 5 questions were retained after testing.

A total of 300 questionnaires were distributed in the formal test, and 300 valid questionnaires were recovered. The questionnaire was scored by Likert's five point scoring method and evaluated by spss24.0 for analysis.

4. Research hypothesis

By analysing literature on family-like exchange, sense of organizational belonging and teachers' professional development, this study hypothesizes that family-like exchange has a positive correlation with teachers' professional development; There is a positive correlation between family-like exchange and sense of organizational belonging; There is a positive correlation between sense of organizational belonging and teachers' professional development; sense of organizational belonging plays an intermediary role between family-like exchange and teachers' professional development.

Research content and result

1. Test of the direct effect of family-like exchange and university teachers' professional development

1.1 Correlation analysis between family-like exchange and professional development of university teachers

The two dimensions of family-like exchange and teachers' professional development are analyzed, and the results are shown in Table 1.

Table 1 Analysis on the relationship between family-like exchange and professional development of university teachers

Variable	Teaching level	Research level
family-like exchange	0.575**	0.454**

Note: * * indicates significant correlation at the level of 0.01

It can be seen from Table 1 that there is a significant positive correlation between family-like exchange and teachers' professional development level at the level of 0.01, in which the correlation coefficient with teaching level is 0.575 and the correlation coefficient with research level is 0.454.

1.2 Regression analysis of family-like exchange and professional development of university teachers

1.2.1 Regression analysis of the influence of family-like exchange on teaching level

Table 2 Regression analysis results of family-like exchange on teaching level

Variable	Beta	t
family-like exchange	0.575**	12.14
F	147.381**	
ΔR^2	0.329	

Note: * * indicates significant correlation at the level of 0.01

It can be seen from Table 2 that the F value of the model is 147.381 ($P < 0.01$), which means that through the F test, the adjusted R^2 is 0.329, which means that all predictive variables explain 32.9% of the variance, and the regression coefficient between family-like exchange

and teaching level is 0.575 ($P < 0.01$), indicating that family-like exchange has an obvious positive influence on teaching level.

1.2.2 Regression analysis of the influence of family-like exchange on research level

Table 3 Regression analysis results of family-like exchange on research level

Variable	Beta	t
family-like exchange	0.454**	8.802
F	77.483**	
ΔR^2	0.204	

Note: * * indicates significant correlation at the level of 0.01

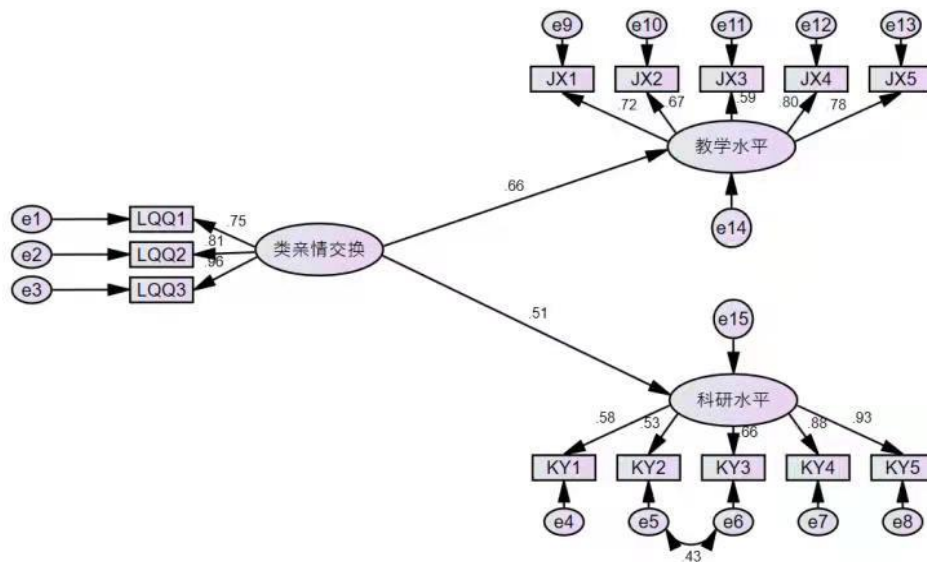
It can be seen from Table 3 that the F value of the model is 77.483 ($P < 0.01$), which means that through the F test, the adjusted R^2 is 0.204, which means that all predictive variables explain 20.4% of the variance. At the same time, the regression coefficient between family-like exchange and teaching level is 0.454 ($P < 0.01$), indicating that family-like exchange has an obvious positive influence on research level.

1.3 Structural equation model analysis of family-like exchange and professional development of university teachers

Each index of the model meets the standard and has ideal fitness, as shown in Table 4, indicating that the actual data has a good fit with the theoretical model.

Table 4 Structure model fitting index of family-like exchange and teacher professional development

χ^2/df	RMSEA	GFI	AGFI	NFI	RFI	IFI	TLI	CFI
2.447	0.07	0.928	0.895	0.929	0.91	0.957	0.945	0.956

**Figure 1 Structural model of family-like exchange and professional development of university teachers**

Note: 类亲情-family-like exchange, 教学水平-teaching level, 科研水平-research level

Table 5 Model test results and assumptions

Relationship between variables	Standardized path coefficient	P value	Influence effect	Hypothesis	Result
family-like exchange→teaching level	0.657	***	significant positive	H1a	support
family-like exchange→research level	0.509	***	significant positive	H1b	support

It can be seen from Figure 1 and Table 5 that the path coefficient between family-like exchange and teaching level in the structural model is 0.657 ($P < 0.001$), indicating that family-like exchange has a significant positive influence on teaching level; The path coefficient between family-like exchange and research level is 0.509 ($P < 0.001$), indicating that family-like exchange had a significant positive influence on research level.

Through the analysis, the results show that the family-like exchange has a significant positive influence on the teaching level; family-like exchange has a significant positive influence on the level of research level. The structural equation model is used to test the main effect of family-like exchange on teachers' professional development level. The empirical

results show that family-like exchange has a significant positive influence on teaching level and research level.

The test results of direct effect hypothesis are shown in Table 6. The conclusion shows that family-like exchange can play a positive role in promoting teachers' professional development.

Table 6 Direct effect test results

Hypothesis	Hypothetical content	Result
H1	positive correlation between family-like exchange and teachers' professional development	support
H1a	positive correlation between family-like exchange and teachers' teaching level	support
H1b	positive correlation between family-like exchange and teachers' research level	support

2. Test the mediating effect of sense of organizational belonging on family-like exchange and teachers' professional development

2.1 Test of the mediating effect of sense of organizational belonging

2.1.1 Analysis on the correlation between family-like exchange and sense of organizational belonging

The correlation analysis between family-like exchange and sense of organizational belonging is carried out, and the results are shown in Table 7.

Table 7 Correlation analysis between family-like exchange and sense of organizational belonging

Variables	Sense of organizational belonging
family-like exchange	0.688*

Note: * indicates significant correlation at the level of 0.01

It can be seen from Table 7 that there is a significant positive correlation between family-like exchange and sense of organizational belonging.

2.1.2 Regression analysis of family-like exchange and sense of organizational belonging

This study makes a regression analysis on the influence of family-like exchange on the sense of organizational belonging.

Table 8 Regression analysis results of family-like exchange on sense of organizational belonging

Variable	Beta	t
family-like exchange	0.688**	16.38
F	268.312**	
ΔR^2	0.472	

It can be seen from Table 8 that the F value of the model is 268.312 ($P < 0.01$), indicating that through the F test, the adjusted R^2 is 0.472, which means that all predictive variables explain 47.2% of the variance. At the same time, the regression coefficient of family-like exchange on the sense of organizational belonging is 0.688 ($P < 0.01$), indicating that family-like exchange has an obvious positive correlation with the sense of organizational belonging.

2.1.3 Correlation analysis between sense of organizational belonging and teaching level

The correlation analysis between sense of organizational belonging and teaching level is carried out, and the results are shown in Table 9.

Table 9 Correlation analysis between sense of organizational belonging and teaching level

	Variable	Teaching level			
indicates $P < 0.05$, indicates $P < 0.01$	Sense of organizational belonging	0.577	0.05,	*	*

It can be seen from Table 9 that there is a significant positive correlation between sense of organizational belonging and teachers' teaching level.

2.1.4 Regression analysis between sense of organizational belonging and teaching level

This study makes a regression analysis on the influence of sense of organizational belonging and teaching level.

Table 10 Regression analysis results of sense of organizational belonging to teaching level

Variables	Beta	t
Sense of organizational belonging	0.577**	12.202
F	148.877**	
ΔR^2	0.331	

It can be seen from Table 10 that the F value of the model is 148.877 ($P < 0.01$), indicating that through the F test, the adjusted R^2 is 0.331, which means that all predictive variables explain 31.1% of the variance. At the same time, the regression coefficient between family-like exchange and teaching level is 0.577 ($P < 0.01$), indicating that there is an obvious positive correlation between the sense of organizational belonging and teaching level.

2.1.5 Correlation analysis between sense of organizational belonging and research level

The correlation analysis between sense of organizational belonging and research level is carried out, and the results are shown in Table 11.

Table 11 Correlation analysis between sense of organizational belonging and research level

	Variable	Research level			
*indicates $P < 0.05$, indicates $P < 0.01$	sense of organizational belonging	0.479**	0.05,	*	*

It can be seen from Table 11 that there is a significant positive correlation between sense of organizational belonging and teachers' research level.

2.1.6 Regression analysis of sense of organizational belonging and research level

This study takes a regression analysis on the influence of sense of organizational belonging and research level.

Table 12 Regression analysis results of sense of organizational belonging to research level

Variable	Beta	t
sense of organizational belonging	0.479**	9.408
F	88.513**	
ΔR^2	0.226	

It can be seen from Table 12 that the F value of the model is 88.513 ($P < 0.01$), indicating that through the F test, the adjusted R^2 is 0.226, which means that all predictive variables explain 22.6% of the variance. At the same time, the regression coefficient between family-like exchange and research level is 0.479 ($P < 0.01$), indicating that the sense of organizational belonging has an obvious positive influence on research level.

2.1.7 Mediating role of sense of organizational belonging

(1) Regression analysis was made on the effects of family-like exchange and sense of organizational belonging on teaching level

Table 13 Regression analysis of family-like exchange and sense of organizational belonging on teaching level

Variable	Beta	t
family-like exchange	0.338**	5.428
sense of organizational belonging	0.344**	5.528
F	96.279**	
ΔR^2	0.389	

It can be seen from Table 13 that the F value of the model is 96.279 ($P < 0.01$), indicating that through the F test, the adjusted R^2 is 0.389, which means that all predictive variables explain 38.9% of the variance. At the same time, the regression coefficients of family-like exchange and sense of organizational belonging on teaching level are 0.338 and 0.344 ($P < 0.01$), indicating that family-like exchange and sense of organizational belonging have an obvious positive influence on the teaching level.

(2) Regression analysis was made on the relationship between family-like exchange and sense of organizational belonging

Table 14 Regression analysis of family-like exchange and sense of organizational belonging on research level

Variable	Beta	t
family-like exchange	0.237**	3.445
sense of organizational belonging	0.315**	4.577
F	51.807**	
ΔR^2	0.254	

It can be seen from Table 14 that the F value of the model is 51.807 ($P < 0.01$), which means that through the F test, the adjusted R^2 is 0.254, which means that all predictive variables explain 25.4% of the variance. At the same time, the regression coefficients between family-like exchange and sense of organizational belonging and research level are 0.237 and 0.315 ($P < 0.01$), indicating that family-like exchange and sense of organizational belonging have an obvious positive influence on research level.

In the test of intermediary variables, the regression coefficient of family-like exchange on teaching level and research level is significant, the regression coefficient of family-like exchange and sense of organizational belonging is significant, and the regression coefficient of family-like exchange and sense of organizational belonging on teachers' teaching level and research level is significant. Therefore, it shows that the intermediary effect of sense of organizational belonging exists.

(3) Structural equation model analysis of the mediating role of sense of organizational belonging

Construct a structural model diagram, as shown in Figure 2, to test the mediating role of sense of organizational belonging between family-like exchange and the two dimensions of teachers' professional development level. The fitting results are shown in table 15, and each index reaches a good fitting degree.

Table 15 Structural model fitting index value

χ^2/df	RMSEA	GFI	AGFI	NFI	IFI	TLI	CFI
2.867	0.079	0.899	0.858	0.907	0.937	0.922	0.937

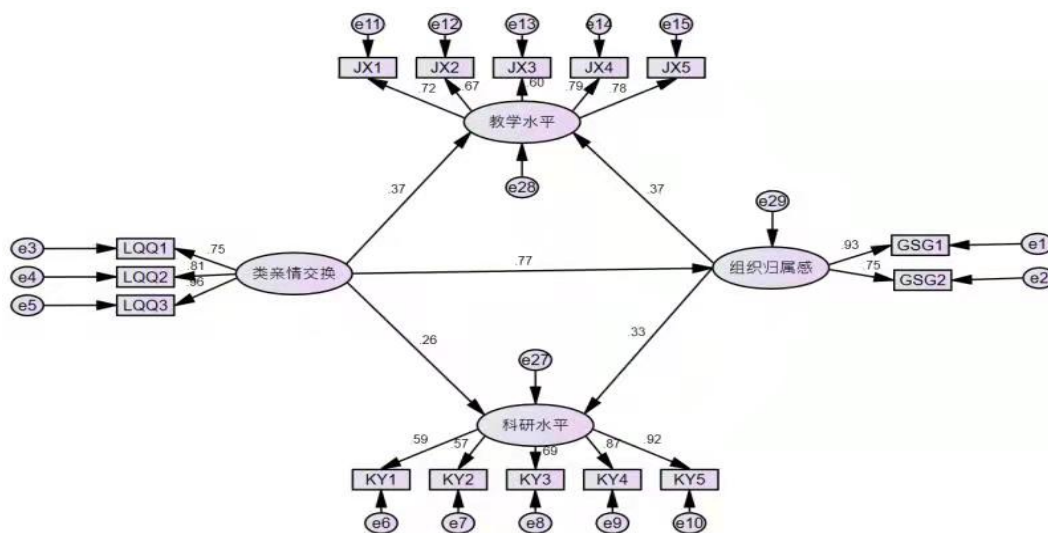


Figure 2 The mediating role model of sense of organizational belonging between family-like exchange and university teachers' professional level

Note: 类亲情-family-like exchange, 教学水平-teaching level, 科研水平-research level

The fitting results of the model are shown in Figure 2, and the path coefficient results of the structural equation model are shown in Table 16.

Table 16 Model test results

Relationship between variables	Standardized coefficient	path	P value	Influence effect
family-like exchange→sense of organizational belonging	0.774		***	significant positive
family-like exchange→teaching level	0.366		***	significant positive
family-like exchange→research level	0.259		0.01	significant positive
sense of organizational belonging→teaching level	0.372		***	significant positive
sense of organizational belonging→research level	0.326		0.002	significant positive
family-like exchange→sense of organizational belonging→teaching level	0.469		indirect effect:0.369	significant positive
family-like exchange→sense of organizational belonging→research level	0.3		indirect effect:0.084	significant positive

In this structural model, the path coefficient between family-like exchange and sense of organizational belonging is 0.774 ($P < 0.001$), indicating that there is a significant positive correlation between family-like exchange and sense of organizational belonging. The path coefficient between family-like exchange and teaching level was 0.366 ($P < 0.001$), and the path coefficient between family-like exchange and research level was 0.259 ($P < 0.05$), indicating that family-like exchange had a significant direct effect on teachers' teaching level and research level. The path coefficients of the impact of sense of organizational belonging on the level of teaching and research were 0.372 ($P < 0.01$) and 0.326 ($P < 0.001$), indicating that the sense of organizational belonging has a significant positive impact on the level of teaching and research.

The indirect effect of family-like exchange on teaching level through sense of organizational belonging is 0.369 and the indirect effect on research level is 0.084, indicating that sense of organizational belonging plays an intermediary role between family-like exchange and teachers' teaching level and research level.

Table 17 Hypothesis' test results of sense of organizational belonging

Hypothesis	Hypothesis content	Result
H2	there is a positive correlation between sense of organizational belonging and teachers' professional development	support
H2a	there is a positive correlation between sense of organizational belonging and teachers' teaching level	support
H2b	there is a positive correlation between sense of organizational belonging and teachers' research level	support
H3	There is a positive correlation between family-like exchange and sense of organizational belonging	support
H4	the sense of organizational belonging plays an intermediary role between family-like exchange and teachers' professional development	support
H4a	the sense of organizational belonging plays an intermediary role between the family-like exchange and teachers' teaching level	support
H4b	the sense of organizational belonging plays an intermediary role between the family-like exchange and teachers' research level	support

Discussion

The following research conclusions are obtained through data analysis:

(1) The family-like exchange has a direct influence on teachers' professional development. This conclusion is consistent with the results of previous studies. The influence on teaching is greater than that on research, which is basically consistent with reality. The results verify the influence of family-like exchange on teachers' professional development, reveal the positive role of family-like exchange on teachers' professional development, and affirm the significance and value of creating family-like exchange atmosphere.

Sense of organizational belonging plays an intermediary role between family-like exchange and teachers' professional development. This study verifies that family-like exchange, as a type of work atmosphere, has a positive influence on employees' sense of organizational belonging. On the other hand, through verification, the sense of organizational belonging has a significant positive correlation with teachers' teaching level and research level. Based on this, the relationship between family-like exchange, sense of organizational belonging and teaching level and research level is that sense of organizational belonging plays an intermediary role in family-like exchange, teaching level and research level.

The research shows that family-like exchange has a significant positive correlation with university teachers' professional development. At the same time, university teachers' sense of organizational belonging not only has a positive correlation with teachers' professional development, but also plays an intermediary role between family-like exchange and teachers' professional development. Therefore, to effectively promote the professional development of university teachers, on the one hand, improve the level of family-like exchange in universities, on the other hand, improve teachers' sense of organizational belonging.

Conclusion

Countermeasures to improve the level of family-like exchange

1. Universities pay attention to the establishment of family-like exchange relationship

The establishment of family-like exchange relationship in universities can form a family like interdependent relationship between employees and organizations, achieve a high degree of integration between employees and organizations, employees have a high degree of loyalty to the organization, and employees can participate in work with a more positive attitude and behavior, so as to improve work efficiency. This study also proves that family-like exchange has a positive correlation with the professional development of university teachers. For institutions such as universities, the scope of stimulating employees in material ways is very limited, coupled with the particularity of teachers, their demand for sense of organizational belonging and self realization is relatively stronger. Therefore, in universities, paying attention to the establishment of family-like exchange relationship can make teachers have stronger emotional dependence on the organization, and are more willing to realize the development of individuals and organizations through the continuous improvement of their professional level.

2. Strengthen communication

Mutual understanding among members of an organization is an important condition for the maintenance and development of family-like exchange relations. Communication and exchange inside and outside the work is the main way to promote mutual understanding. Therefore, the effective communication and exchange between university teachers and organizations can significantly improve the relationship between universities and teachers, promote mutual understanding and shorten the distance between each other. Through communication, it can effectively increase the mutual trust and dependence between teachers and organizations and promote the integration and development of both sides. In universities, we can strengthen the communication and exchange between teachers and organizations through various forms, such as teaching and research activities, teachers' collective activities, amateur competitions and so on, so as to improve the level of organizational family-like exchange.

3. Increase organizational support

An important factor in the establishment of such family-like exchange relationship is the emotional dependence between teachers and universities. In China's traditional culture, emotional experience is emphasized. Therefore, teachers' emotional dependence on universities is closely related to their positive support and relationship from the university in their work. When teachers can feel the care and support from the organization, And this kind of care and support is not only the work itself, but also includes teachers' personal development and all aspects of their life. When teachers experience the feeling of integration with the organization, they will have more positive feelings for the organization and form more lasting emotional dependence. The organization's support for teachers should not only help teachers grow up at work, but also include support for teachers' personal career development and teachers' life difficulties, such as solving the problems of school enrollment of teachers' children, medical treatment of family members and other issues of special concern to teachers, so that teachers can feel the family relationship similar to family in the organization.

Countermeasures to improve teachers' sense of organizational belonging

It is found that the improvement of university teachers' sense of belonging also has a significant positive correlation with the development of their professional development level.

By improving the sense of organizational belonging, it also has a significant influence on promoting the professional development level of university teachers.

1. Make teachers fully understand the university culture

University should also make teachers understand and identify with the university culture through a variety of ways, so that the connotation of university culture can gradually turn into teachers' conscious identity, so as to form collective cohesion and enhance teachers' sense of identity with the organization. The university can guide and deepen teachers' understanding and recognition of the organization and improve their satisfaction and pride of the organization through system construction and cultural construction.

2. Guide teachers to make career planning

What kind of support an organization can provide to employees is an important factor affecting employees' sense of organizational belonging. For university teachers, they pay attention to the continuous development of their profession and the effective planning of their career. Therefore, by providing teachers with appropriate training, giving teachers professional identity and helping teachers plan their career reasonably can improve teachers' professional ability, so that teachers have high recognition of the university and enhance their sense of organizational belonging. In university, on the one hand, university provides appropriate training for teachers to help teachers have a full understanding of their profession and a clear judgment of themselves. On the other hand, organize experts to set up a special team, make scientific and reasonable career planning in combination with the actual situation of teachers, guide teachers, especially young teachers, to understand their current situation, and help them make reasonable career design in combination with their own interests, specialties and teaching experience. so that teachers can have sufficient development space through scientific career planning, so as to enhance the recognition of the organization.

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