

## RESEARCH ON THE RELATIONSHIP BETWEEN WORK-FAMILY BALANCE AND INNOVATION PERFORMANCE OF COLLEGE TEACHERS – MEDIATING EFFECT OF SUBJECTIVE WELL-BEING

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**ABSTRACT.** *In order to discuss the relationship between work-family balance and the innovation performance of college teachers in China, this paper further verifies the intermediary role of subjective well-being in both perspectives, using the Localization Work-Family Balance Scale, the Innovation Performance Scale for College Teachers and the Subjective Well-Being Scale to survey 769 college teachers. The results show that work-family conflict and family-work conflict in Chinese context predict the innovation performance and subjective well-being of college teachers. Moreover, work-family facilitation and family-work facilitation in Chinese context predict the innovation performance and subjective well-being of college teachers. Besides, the subjective well-being has a significant positive effect on the innovation performance among college teachers. Under the current context of China, the subjective well-being plays an intermediary role in work-family balance and the innovation performance of college teachers. This paper further reveals the mechanism of the effect of work-family balance on the innovation performance of college teachers in China, and at the same time provides a basis for the theoretical study of the relationship between them.*

**Keywords:** Work-family balance, College teacher, Innovation performance, Subjective well-being

**1. Introduction.** Innovation is the primary driving force for development. In [1,2], Etzkowitz and Leydesdorff proposed through the triple dynamic spiral model: “Universities and knowledge production institutions are becoming the main institutions of society and become the core spiral of the leadership of innovation organizers”; “As the main positions of national innovation-driven development strategy, colleges and universities are an important fulcrum of national technological innovation system” has become the basic consensus for understanding the role of universities in the innovation system. As the main bearers of college innovation, college teachers’ innovation performance is the basic indicator to measure the ability and role of colleges and universities in the national innovation system. Compared with the academic field’s attention to the direct research of college teachers’ innovation performance, scholars have produced a number of research results in the “employee innovation performance”. Readers can refer to [3-5].

In the real situation, the pressure of college teachers from work and life has become a hot topic in recent years. In the People’s Daily’s real-life report, it summarizes the various phenomena, problems and reflections of young teachers in colleges and universities in teaching, research and family life. These phenomena are essentially a typical expression of role theory. That is, under the condition of limited psychological resources, college teachers suffer from the loss of psychological resources caused by the overload of multiple roles, resulting in an unbalanced state. The academic community has a history of nearly

30 years of research on this type of enterprise-oriented problem, and has formed a “work-family” interface study composed of different perspectives such as “conflict, facilitation and balance”. Although there are few papers directly studying the relationship between “work-family” interface and innovation performance, some scholars have paid attention to it from different perspectives of “work-family”.

Work and family are the most important aspects of people’s life. How to deal with the relationship between them has always been an important research direction in human resource management. Readers can refer to [6-9]. Previous studies on the relationship between work and family have focused on the field of work-family conflict based on the “scarcity hypothesis”. The “scarcity hypothesis” believes that individuals have limited resources such as time and energy, and multiple roles inevitably lead to the loss of psychological resources and create conflicts. Over the past 30 years, research on “work-family conflicts” has maintained steady growth. Among them, the study of traditional work performance as a result variable is a hot issue in this field. Later, with the development of positive psychology, researchers tried to establish new hypotheses based on the “enhanced hypothesis”. Many scholars look at the work-family relationship from a positive perspective and propose the concept of work-family gain. It also includes research on the relationship of job performance. Some scholars believe that “work-family facilitation” can lead to higher performance of role. In recent years, a group of scholars such as Frone, Greenhaus and Carlson who have had rich research results in the “work-family” conflict or facilitation field began to pay attention to the study of “work-family balance”. Theoretically, it enriched the research interface of “work-family”. Among them, scholars focus on positive outcomes resulted from high balance, such as higher job performance, job satisfaction, and organizational citizenship behavior. Based on the above analysis, the research on the “work-family” interface has undergone an evolutionary process of “conflict” – “facilitation” – “balance”. The study of “work-family balance” in this field is more representative and systematic. Therefore, the “work-family balance” as the current perspective of understanding the role behavior of college teachers can limit either “positive or negative” perspectives. Compared to the focus on the relationship between work-family interface and job performance, innovation performance does not seem to be valued in this area. Readers can refer to [10,11], only Schieman and other scholars surveyed 1,800 US employees and found that employees with higher creative performance also had fewer “work-family conflicts”; Karatepe and Olugbade confirmed that “family-work facilitation” can enhance employees’ innovation ability through “work embedding”. However, these two studies are more from the perspective of individual innovation capabilities, without considering the mechanisms associated with innovation performance.

Social comparative theory thinks that subjective well-being is a scientific analysis of people’s evaluation of their current or past life, including people’s emotional reactions and moods to events happening around them, or a kind of judgement on whether they are satisfied or fulfilled with work, life, marriage, etc. In [12,13], positive work-family seepage can improve subjective well-being, while work-family balance also has a significant positive predictive of subjective well-being. On the other hand, subjective well-being has a strong correlation with innovative behaviors and innovation performance. Some scholars have pointed out that subjective well-being can help people improve their ability to innovate; at the same time, happiness can also contribute to organizational innovation performance. Based on the above analysis, this paper believes that work-family balance may have a significant predictive effect on the innovation performance of college teachers. Therefore, subjective well-being is very likely to play the role of intermediary variable between the two. Therefore, this paper proposes the following assumptions:

H1: Work-family conflict and family-work conflict in Chinese context are negatively predicting the innovation performance and subjective well-being of college teachers;

H2: Work-family facilitation and family-work facilitation in Chinese context are positively predicting the innovation performance and subjective well-being of college teachers;

H3: Subjective well-being has a significant positive impact on the innovation performance of college teachers;

H4: Subjective well-being in Chinese context plays an intermediary role between the work-family balance and the innovation performance of college teachers.

## 2. Research Methods.

**2.1. Participants.** The survey conducted a survey of college teachers in 50 universities in Northeast of China, North of China, Southeast of China and Southwest of China by participating in academic conferences and private relations to issue questionnaires. Among them, there are 10 universities (985, 211, provincial, municipal and independent). A total of 820 questionnaires were distributed and 769 valid questionnaires were returned, with an effective rate of 93.8%. 387 male teachers and 382 female teachers; 95 people under the age of 30, 240 people aged 30 to 40, 256 people aged 40 to 50, 178 people aged 50 to 60; There are 237 junior titles (teaching assistants), 218 intermediate titles (lecturers), and 314 senior titles (associate professors and professors). Subjects covered different majors such as medicine, science and engineering, economic management, and education.

**2.2. Research tools.** Localization Work-Family Balance Scale: The researchers are based on the Frone four-dimensional scale developed by Grzywacz and Marks. According to Chinese traditional culture and real social situation, the questionnaire was processed in a contextual manner. Exploratory factor analysis, confirmatory factor analysis and reliability and validity test were performed on 409 valid samples collected. The empirical results show that the localization work-family balance scale has good reliability and validity, and the overall internal consistency coefficient of the questionnaire was 0.76.

Innovation Performance Scale for College Teachers: This paper uses the university teacher innovation performance scale compiled by Jia Jianfeng. The scale contains 8 items in 3 dimensions. The 3 dimensions are innovation willingness, innovative behavior, and innovation results. The overall internal consistency coefficient of the questionnaire is 0.795.

Subjective Well-Being Scale: This paper uses the subjective well-being scale compiled by Wang Xiangdong. The scale contains 9 items in 2 dimensions, and the two dimensions are the overall happiness index and life satisfaction.

**2.3. Statistical methods.** This paper uses SPSS24.0 and LISREL8.7 for statistical analysis of the data.

## 3. The Results and Analysis.

**3.1. The correlation analysis of work-family balance in Chinese context, the innovation performance of college teachers and subjective well-being.** This paper analyzes the correlation between work-family balance in Chinese context, the innovation performance of college teachers and subjective well-being. The analysis results are shown in Table 1: work-family conflict and family-work conflict in Chinese context are negatively predicting the innovation performance and subjective well-being of college teachers ( $\beta = -.434$ ,  $\beta = -.440$ ,  $\beta = -.451$ ,  $\beta = -.447$ ,  $P < 0.01$ ), work-family facilitation and family-work facilitation in Chinese context are positively predicting the innovation performance and subjective well-being of college teachers ( $\beta = .542$ ,  $\beta = .616$ ,  $\beta = .749$ ,  $\beta = .770$ ,  $P < 0.01$ ), hypothesis 1 and hypothesis 2 are true; subjective well-being is significantly positively correlated with the innovation performance of college teachers ( $\beta = .742$ ,  $P < 0.01$ ), hypothesis 3 is true; significant correlations between variables provide the basis for testing for mediating effects.

TABLE 1. The correlation analysis of work-family balance in Chinese context, the innovation performance of college teachers and subjective well-being

Variable	1	2	3	4	5	6
1. WFC	1					
2. WFF	-.197**	1				
3. FWC	.328**	-.420**	1			
4. FWF	-.309**	.568**	-.512**	1		
5. SWB	-.434**	.542**	-.451**	.749**	1	
6. IP	-.440**	.616**	-.447**	.770**	.742**	1
M	8.631	10.644	10.085	10.741	6.982	10.112
SD	3.383	3.471	3.313	3.275	2.144	3.195

Note: \*\* indicates  $P < 0.01$  (two-tailed test)

WFC: work-family conflict; WFF: work-family facilitation; FWC: family-work conflict; FWF: family-work facilitation; SWB: subjective well-being; IP: innovation performance; The same below.

**3.2. Path analysis of work-family balance in Chinese context, the innovation performance of college teachers and subjective well-being.** According to the dimension of the scale itself, in this paper, the observed variables of each latent variable are set as follows: in order to examine the influence of the four dimensions of work-family balance in Chinese context on subjective well-being and the innovation performance of college teachers, work-family conflict, work-family facilitation, family-work conflict and family-work facilitation as latent variables, the items corresponding to each dimension are used as observation variables; the overall happiness index and life satisfaction constitute the observed variables of subjective well-being; innovation willingness, innovative behavior and innovation results constitute the observed variables of college teachers' innovation performance. Thus, the measurement model includes 4 latent variables and 17 observed variables.

This study is based on the mediation effect test process proposed by Wen Zhonglin et al. Two measurement models are constructed in turn using the maximum variance likelihood method: 1) direct effect model without "subjective well-being"; 2) a mediation model that includes "subjective well-being". According to the model fitting good standards,  $\chi^2/df$  is less than 5, GFI, NFI, CFI, NNFI, IFI, etc. are greater than 0.9 and the RMSEA value is less than 0.08. The results show that the direct action model has a good fit, ( $\chi^2/df = 2.30$ , CFI = 0.99, GFI = 0.97, NNFI = 0.99, RMSEA = 0.041). The standardized path coefficients from the four dimensions of work-family balance in Chinese context to the innovation performance of college teachers are significant ( $\beta = -0.26$ ,  $\beta = 0.21$ ,  $\beta = -0.15$ ,  $\beta = 0.76$ ,  $P < 0.001$ ); it provides the basis for the construction of the mediation model. Then, the mediator of subjective well-being is included in the construction mediation model. The results showed that the mediation model fits well ( $\chi^2/df = 2.03$ , CFI = 0.99, GFI = 0.97, NNFI = 0.99, RMSEA = 0.037); the direct prediction of the innovation performance of college teachers is reduced by the four dimension of work-family balance. However, it still reached a significant level ( $\beta = -0.23$ ,  $\beta = 0.20$ ,  $\beta = -0.13$ ,  $\beta = 0.66$ ,  $P < 0.001$ ). This shows that subjective well-being plays a part in mediating between the work-family balance in Chinese context and the innovation performance of college teachers, hypothesis 4 is true. As can be seen from Figure 1, in the partial mediation model, the direct impact of the four dimensions of work-family balance in Chinese context on the innovation performance of college teachers' path standardization coefficients are  $-0.23$ ,  $0.20$ ,  $-0.13$  and  $0.66$  respectively. The standardized coefficients of the influence path on subjective well-being are  $-0.27$ ,  $0.08$ ,  $-0.12$  and  $0.86$ .

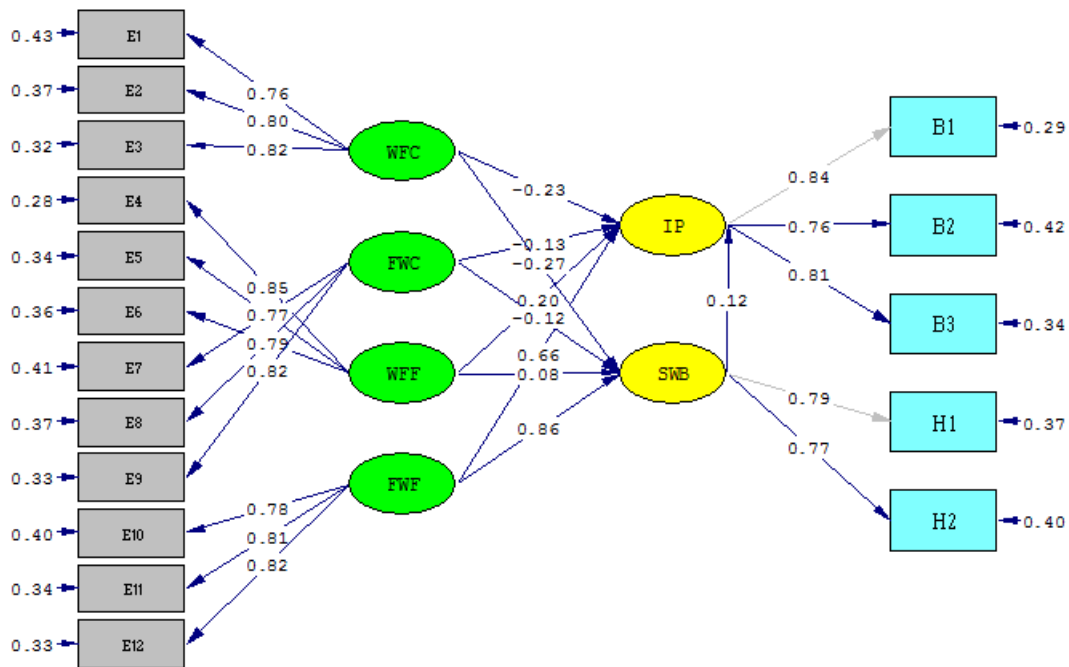


FIGURE 1. The mediating role of subjective well-being in work-family balance in Chinese context and college teachers’ innovation performance (Note: B1: innovation willingness; B2: innovative behavior; B3: innovation results; H1: overall happiness index; H2: life satisfaction)

TABLE 2. The effect decomposition of work-family balance in Chinese context on subjective well-being and the innovation performance of college teachers

Path	Mediation effect
WFC→IP	-0.23
WFC→SWB→IP	-0.27 * (0.12) = -0.03
WFF→IP	0.20
WFF→SWB→IP	0.08 * (0.12) = 0.01
FWC→IP	-0.13
FWC→SWB→IP	-0.12 * (0.12) = -0.01
FWF→IP	0.66
FWF→SWB→IP	0.86 * (0.12) = 0.10
SWB→IP	0.12

The indirect effect of the four dimensions of work-family balance in Chinese context on the innovation performance of college teachers felt through subjective happiness is shown in Table 2.

In order to further prove the mediating role of subjective well-being between work-family balance in Chinese context and innovation performance of college teachers, this study is also compared with the complete mediation model. Table 3 results show that, although the fitting degree of the complete mediation model is also good ( $\chi^2/df = 3.82$ , CFI = 0.98, GFI = 0.95, NNFI = 0.96, RMSEA = 0.058), compared with the partial mediation model,  $\chi^2$  is significantly increased and  $\chi^2/df$ , NNFI, CFI and other indicators perform worse. Explain the path “work-family conflicts – innovation performance of college teachers”, “work-family facilitation – innovation performance of college teachers”, “family-work conflicts – innovation performance of college teachers” and “family-work

TABLE 3. Comparison of the fitting index between partial mediation model and complete mediation model

Model	$\chi^2$	df	$\chi^2/\text{df}$	CFI	NFI	GFI	NNFI	IFI	RMSEA
Partial mediation	211.4	104	2.03	0.99	0.99	0.97	0.99	0.99	0.037
Complete mediation	523.3	137	3.82	0.98	0.97	0.95	0.96	0.97	0.058

facilitation – innovation performance of college teachers” cannot be deleted. It further validates the partial mediation of subjective well-being between the two.

#### 4. Conclusions and Implications.

**4.1. Conclusions.** Based on the theory of resource conservation and the theory of social comparison, this study explores the impact of work-family balance on the innovation performance of college teachers in China’s context, and clarifies the mechanism of subjective well-being in it. It achieved certain results based on the previous studies. The research results show that: (1) work-family conflict and family-work conflict in the Chinese context predict negative innovation performance and subjective well-being of college teachers; (2) work-family facilitation and family-work facilitation in Chinese context predict positive innovation performance and subjective well-being of college teachers; (3) subjective well-being has a significant positive impact on the innovation performance of college teachers; (4) subjective well-being in Chinese context plays a mediating role between the work-family balance and the innovation performance of college teachers. The research conclusion confirms the theoretical hypothesis and enriches the theoretical research on work-family interface and innovation performance. In addition, studies have confirmed the mediating role of subjective well-being, which has certain value for uncovering the “black box” between work-family balance and innovation performance.

**4.2. Management implications.** First of all, the relationship between work-family balance and the innovation performance of college teachers in Chinese context suggests that organizations should increase the positive role of college teachers’ work and families in various forms and support a higher level of work-family balance. Secondly, the research results show that subjective well-being in Chinese context plays a mediating role between the work-family balance and the innovation performance of college teachers. This suggests that organizations can start from the perspective of improving individual subjective well-being, establish a cultural concept that is as important as family and work, create a harmonious working atmosphere, and pay more attention to the job satisfaction of college teachers, so as to achieve the goal of improving individual innovation performance.

**4.3. Shortcomings and prospects.** This study has certain shortcomings. First of all, this paper adopts the cross-sectional research method. Although it explores in Chinese context the mechanism of work-family balance of college teachers, through the subjective well-being effect on the innovative performance, it is impossible to draw a causal relationship between the three variables. In the future research, vertical research methods should be used to further investigate the influence mechanism of work-family balance and college teachers’ innovation performance in Chinese context. Secondly, studies have shown that the innovation results of 985 college teachers are more significant than those of ordinary universities; in the future research, the type of colleges and universities can be used as a control variable to explore the mechanism of the impact of work-family balance on the innovation performance of college teachers in Chinese context.

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