

Research on the Mechanism of Learning Motivation, Learning Engagement and Teaching Efficacy of Normal University Students

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Abstract: In this paper, the relationship between learning motivation, learning engagement and teaching efficacy of normal university students was investigated by questionnaire, and the mediating effect of learning engagement between learning motivation and teaching efficacy was tested. The results show that the learning motivation of normal university students mainly stems from the expectation of professional achievement and academic achievement, the focus dimension of learning engagement is higher than the vitality and dedication dimension, and the personal teaching efficacy is higher than the general education efficacy. There are significant correlations among the learning motivation, learning engagement and teaching efficacy of normal university students, as well as among the dimensions of the three. Learning motivation has a significant direct effect on teaching efficacy, and learning engagement plays a partial mediating role between learning motivation and teaching efficacy. Among the three dimensions of learning engagement, the mediating effect of the focus dimension on learning motivation and teaching efficacy is more significant.

1. Introduction

In 2018, the CPC Central Committee and The State Council issued the Opinions on Comprehensively Deepening the Reform of Teacher Team Construction in the New Era, which fully affirmed the concept of "strengthening teachers first to rejuvenate the country", proposed to vigorously revitalize teacher education, effectively improve the quality of students, and attract outstanding young people to actively apply for normal universities and teachers' majors ^[1]. Normal education is a pre-service education aiming at training teachers. Normal students are the main source of primary and secondary school teachers and the backbone of the basic education system ^[2].

The Ministry of Education and five other departments issued the Action Plan for the Revitalization of Teacher Education (2018-2022), which stated that after about five years of efforts, a number of high-quality and distinctive teacher education universities and normal education majors will be established, and the overall quality, professionalism and innovation ability of teachers will be significantly improved^[3-5]. The purpose of this study is to explore the intrinsic relationship between the learning motivation of normal university students and their learning engagement and teaching efficacy.

2. Research Methods

2.1. Research Objects

This study was conducted in a normal university in the east of China. A total of 1180 questionnaires were distributed and 1162 were recovered, with a recovery rate of 98.47%. Among the 1089 normal university students, there are 281 boys and 808 girls; There are 279 freshmen, 346 sophomores, 286 juniors and 178 seniors; 1,010 undergraduates and 79 junior university students; There are 455 students majoring in liberal arts, 377 students majoring in science, 246 students majoring in arts and sports, and 11 students majoring in other majors.

2.2. Research Tools

(1) Learning motivation questionnaire

On the basis of reference to related research, this study designed a self-designed learning motivation questionnaire. The questionnaire adopts five-point Likert score and consists of 13 questions, including 5 questions about career achievement motivation, 5 questions about academic achievement motivation and 3 questions about family interest motivation. Career achievement motivation is the motivation to learn in order to have a better performance on the job after graduation. Academic achievement motivation is the motivation to study for better performance in university. Family interest motivation is the learning motivation stimulated by the improvement of parents' life or the development of future children.

(2) Learning Engagement questionnaire

This study designed the learning engagement questionnaire based on the reference of related research. The questionnaire adopts five-point Likert scoring method, with a total of 14 questions, including 5 questions in the vitality dimension, 5 questions in the dedication dimension and 4 questions in the focus dimension.

(3) Teaching efficacy questionnaire

On the basis of reference to related research, this study designed the self-efficacy questionnaire for teachers. The questionnaire adopts five-point Likert score and consists of 12 questions, including 6 questions in the dimension of general education efficacy and 6 questions in the dimension of personal teaching efficacy.

3. Research R Basic Esults

3.1. The Situation of Normal University Students' Learning Motivation, Learning Engagement and Teaching Efficacy

The analysis of the learning motivation of normal university students shows that the level of academic achievement motivation is higher, the vocational achievement motivation is second, and the family interest motivation is the lowest. The average score of the three dimensions is calculated,

and the total average score M of normal university students' learning motivation is 3.42, as shown in Table 1. The overall situation of normal university students' learning motivation is slightly higher than the medium level, and there is still a large room for improvement. F-test showed that there were significant differences among the three dimensions. The post hoc test shows that the score of academic achievement motivation is significantly higher than that of professional achievement motivation and family interest motivation, the score of professional achievement motivation is significantly lower than that of academic achievement motivation and significantly higher than that of family interest motivation, and the score of family interest motivation is significantly lower than that of academic achievement motivation and career achievement motivation.

Table 1: Average and standard deviation of learning motivation, learning engagement and teaching efficacy of normal university students.

Object	Indicators	M	SD	F/t
Learning motivation	Professional achievement	3.68	0.61	475.77**
	Academic achievement	3.79	0.70	
	Family interests	2.86	0.92	
	Total score	3.42	0.58	
Learning engagement	Vitality	3.42	0.70	30.10**
	Dedication	3.39	0.76	
	Focus	3.61	0.76	
	Total score	3.49	0.66	
Teaching efficacy	Personal teaching efficacy	3.52	0.60	7.06**
	General educational efficacy	3.29	0.79	
	Total score	3.41	0.43	

Note: ** indicates significance at 0.01 level.

The analysis of the learning engagement of normal university students shows that normal university students score higher in the dimension of concentration, followed by the dimension of vitality and the dimension of dedication. The average score of the three dimensions is calculated, and the total average score of normal university students' learning input is M=3.49. F-test showed that there were significant differences among the three dimensions. Post hoc test showed that the score of focus dimension was significantly higher than dedication and vitality dimension, but there was no significant difference between vitality and dedication.

The investigation on the teaching efficacy of normal university students shows that the personal teaching efficacy of normal university students has reached a high level, and the average value is higher than the general education efficacy. The difference between the two was further analyzed by paired t-test, and the results showed that $t=7.06$, indicating that the personal teaching efficacy of normal university students was significantly higher than that of the general education efficacy.

3.2. Correlation Analysis of Normal University Students' Learning Motivation, Learning Engagement and Teaching Efficacy

The correlation between learning motivation, learning engagement and teaching efficacy of normal university students was investigated. The results showed that there was a significant correlation between learning motivation and learning engagement ($P<0.01$), and a significant correlation between learning motivation and teaching efficacy ($P<0.05$). There was significant correlation between learning engagement and teaching efficacy ($P<0.01$). This indicates that learning motivation does have a certain impact on learning engagement and teaching efficacy, as shown in Table 2.

Table 2: Correlation analysis results of learning motivation, learning engagement and teaching efficacy of normal university students.

	1	2	3	4	5	6	7	8	9	10
1. Total score of learning motivation	-									
2. Professional achievement	0.71**	-								
3. Academic achievement	0.80**	0.58**	-							
4. Family interests	0.77**	0.22**	0.31**	-						
5. Total score of learning engagement	0.59**	0.53**	0.53**	0.29**	-					
6. Vitality	0.61**	0.56**	0.51**	0.38**	0.88**	-				
7. Dedication	0.50**	0.48**	0.49**	0.28**	0.92**	0.72**	-			
8. Focus	0.43**	0.43**	0.46**	0.19**	0.90**	0.62**	0.77**	-		
9. Total score of teaching efficacy	0.05*	0.23**	0.19**	-0.20**	0.20**	0.20**	0.17**	0.21**	-	
10. Personal teaching efficacy	0.56**	0.46**	0.39**	0.23*	0.52**	0.50**	0.49**	0.42**	0.49**	-
11. General educational efficacy	-0.28**	-0.09*	-0.08*	-0.40**	-0.18**	-0.18**	-0.20**	-0.09**	0.76**	-0.20**

Note: * indicates significance at 0.05 level, ** indicates significance at 0.01 level.

The correlation between different dimensions of learning motivation, learning engagement and teaching efficacy of normal university students was further explored. The results showed that family interest motivation was significantly negatively correlated with teaching efficacy at 0.01 level, and general education efficacy was significantly negatively correlated with learning motivation and learning engagement at different levels. The other dimensions were positively correlated at 0.01 level.

3.3. The Mechanism of Learning Motivation, Learning Engagement and Teaching Efficacy of Normal University Students

This study hypothesizes that the learning motivation of normal university students can further affect the teaching efficacy through learning engagement, that is, learning engagement is the mediating variable of learning motivation of normal university students. In order to verify this hypothesis, this paper adopts structural equation model to test, as shown in Table 3.

Table 3: Fitting index of the relationship model of learning motivation, learning engagement and teaching efficacy of normal university students.

	M0	M1	M2	M3	M4	M5
χ^2/df	56.49	32.73	39.29	50.01	31.24	29.33
NFI	0.84	0.90	0.86	0.83	0.89	0.89
GFI	0.95	0.96	0.90	0.90	0.96	0.96
CFI	0.84	0.90	0.87	0.83	0.90	0.89
IFI	0.84	0.90	0.87	0.83	0.89	0.89
RMSEA	0.23	0.17	0.19	0.21	0.17	0.16
RMR	0.04	0.03	0.04	0.04	0.03	0.03

First, direct effect test (M0) was performed. Taking normal university students' learning motivation as exogenous latent variable and teaching efficacy as endogenous variable, the direct effect of normal university students' learning motivation on teaching efficacy was investigated. The results showed that the correlation path between learning motivation and teaching efficacy of normal university students was significant ($P < 0.01$), and the fitting index was good, as shown in Figure 1.

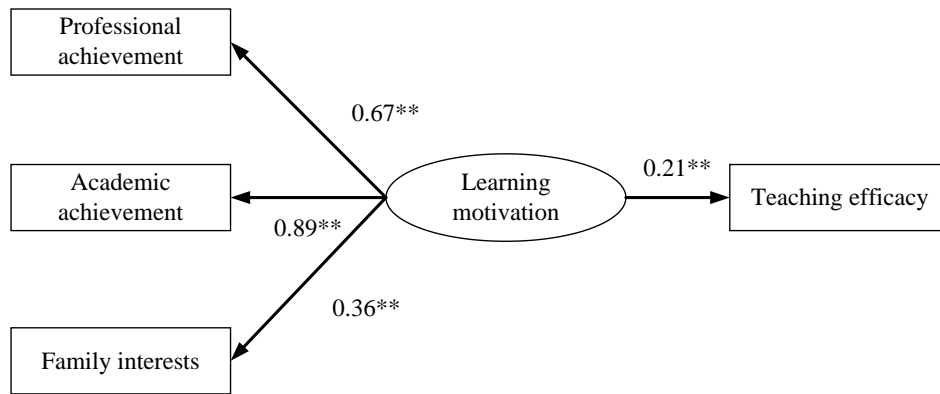


Figure 1: The relationship model between learning motivation and teaching efficacy of normal University students (M0).

We put learning engagement into model M1 as a mediating variable, and the standardized path coefficient of "learning motivation-teaching efficacy" decreased from 0.21 to 0.20, but it was still significant. Learning engagement partially mediates the relationship between learning motivation and teaching efficacy. Compared with the direct model M0, the fitting indexes of the mediation model M1 are significantly better, as show in Figure 2, but the standardized path coefficient of "learning engagement -- teaching efficacy" is 0.08, which does not meet the requirement of significance level. Therefore, we decided to further explore the mediating effect of each dimension of learning engagement.

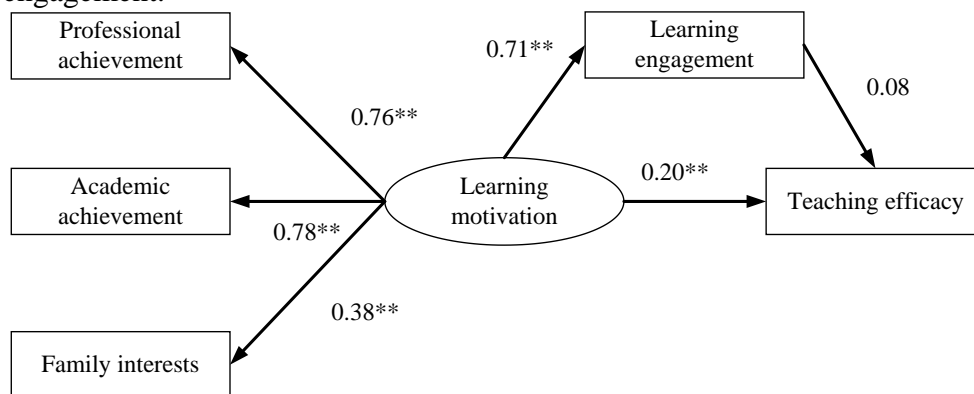


Figure 2: The relationship model of learning motivation, learning engagement and teaching efficacy of normal university students (M1).

When we put the vitality, dedication and focus of learning input into model M2 to test the mediating effect, we found that the model fitting was not ideal. In particular, the standardized path coefficient of "vitality - teaching efficacy" is -0.07. After removing this path, the mediation model M3 is composed of two dimensions of dedication and focus. In this model, the standardized path coefficient of learning motivation on teaching efficacy rises from 0.21 in M0 to 0.60. The standardized path coefficient of dedication and focus on teaching efficacy is very low, and the model fitting is very unsatisfactory. When we delete the path of "attention-teaching efficacy", the

fitting index of model M4 is improved compared with M3, but it is still not ideal. Finally, we put focus into model M5 as a mediating variable. The standardized path coefficient of "learning motivation-teaching efficacy" is 0 in M0. 21 decreased to 0.18 and significant, and the standardized path coefficient of "attention-teaching efficacy" was 0.11 and significant. The focus dimension plays a partial mediating role in the relationship between learning motivation and teaching efficacy, and the fitting indexes of model M5 are good, as shown in Figure 3.

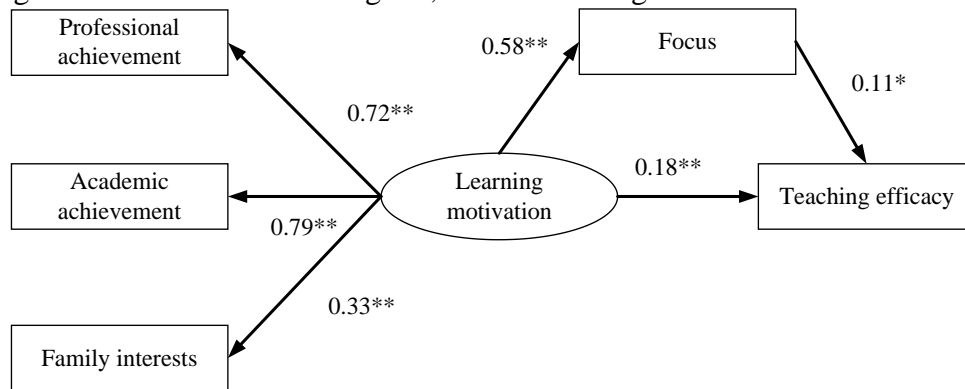


Figure 3: The relationship model of learning motivation, focus and teaching efficacy of normal university students (M5).

4. Conclusions

Through this research, the following conclusions are mainly drawn:

(1) The learning motivation of normal university students mainly stems from the expectation of professional and academic achievement. The concentration dimension of normal university students' learning input is higher than the vigor and dedication dimension. The personal teaching efficacy of normal university students is higher than that of general education.

(2) There is a significant correlation between the learning motivation, learning engagement and teaching efficacy of normal university students, as well as between the dimensions of the three. However, teaching efficacy is negatively correlated with family interest motivation, general education efficacy is negatively correlated with learning motivation and its dimensions, learning engagement and its dimensions, and personal teaching efficacy.

(3) The direct effect of learning motivation on teaching efficacy is significant, and learning engagement plays a partial mediating role between learning motivation and teaching efficacy. However, among the three dimensions of learning engagement, the mediating effect of focus dimension on learning motivation and teaching efficacy is more significant.

Acknowledgments

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