The Research on Influence about College Students' Psychological Capital in Learning Engagement

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Abstract: Psychological capita comprised of self-efficacy, optimism, hope and resilience, has a positive impact on study-related outcomes. This paper is aimed to provide empirical evidence on the relationships between positive psychological capita and learning engagement of undergraduate students; with positive emotion as a mediator, to examine the mechanism linking positive psychological capita and learning engagement. The participants are 211 undergraduate students. With confirmatory factor analyses and structural equation model, the results indicate the predictive relationship between positive psychological capita and learning engagement. Furthermore, the relationship between positive psychological capita and learning engagement was not mediated by positive emotion.

1. Introduction

At present, most of the research on psychological capital is carried out with the organizational staff as the sample. Some studies show that psychological capital has a significant positive impact on employee performance. After consulting the literature, research on college students has been carried out in foreign countries, and some studies show that psychological capital has a significant positive impact on college students' learning performance. Therefore, this topic selects 211 college students as the sample, and explores the impact of psychological capital on student engagement through the questionnaire survey method [1].

Through in-depth analysis, the reasons for the low learning engagement of contemporary college students may be due to emotional adjustment in learning. Positive emotions are people's feelings of pleasure, and they have a priming effect on individual cognition. Looking at the essence through the phenomenon, some college students' low learning engagement may be due to the negative perception of learning [2]. Therefore, the purpose of this study is to explore the mechanism of the relationship between psychological capital and learning engagement [3].

2. Methods

2.1. The subjects

The subjects in this study were the students from Wuhan. We conducted the experiment through the questionnaires. We gave out the 300 questionnaires to the classes we have already connected with and then took back 247 valid questionnaires. The valid recovery rate was 82.3% of the total. Among the subjects, male subjects were 80, accounting for 26.6% of the total, the female were 167, accounting for 70% of the total. There were 100 subjects majoring in psychology, accounting for 47% of the total, and 36 subjects majoring in PE, accounting for 17 % of the total, 34 subjects majoring in primary education, accounting for 16 % of the total, 14 subjects majoring in educational technology, accounting for 6% of the total, 27 subjects majoring in pre-school education, accounting for 11% of the total. These were students from the families with the monthly income varied from 2000 to 4000 [4].

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2.2. The variable measurement

Psychological Capital: We used Psychological Capital Questionnaires adapted by Zhang Kuo, which included 26 measurement subjects to be used to measure this variable. This scale has made its four elements based on the published and extensively recognizable standardized scale with its reliability and validity verified according to the practical situation of Chinese university students. This scale was made up of four dimensions involving self-efficiency, hope, resilience and optimism. We used the Likert-6 scoring method, which utilized the number one to six to represent the different attitudes of the subjects from dissatisfaction to satisfaction. The subjects included the judgments such as, many admire my capacity, my opinions and competences are unordinary and I am very confident about my capacity. The consequence of CFA demonstrated that the data was in accordance with the model composed of four factors and a high-order factor.(χ^2=577.032,df=293,RMSEA=0.068,GFI=0.823,NFI=0.839,TLI=0.883)The internal consistency α coefficients of the four dimensions were respectively 0.861, 0.808, 0.792 and 0.868. The overall internal consistency α coefficient of this scale was 0.864. According to the previous researches, we used the average value of the four dimensions as the measured value [5].

2.3. The statistic analysis

This research used the software SPSS16.0 and the software AMOS 21.0 to conduct the data analysis. The analysis item included (1) Conduct the descriptive statistics and correlation analysis.;(2) Examine and investigate the reliability and validity of the questionnaires through the validity analysis and the confirmatory factor analysis; (3) Construct structural equation through AMOS to investigate the correlation among the positive emotion, psychological capital and learning involvement.

2.4. The experimental hypothesis

The experimental hypotheses in this research: (1) Psychological capital has the predictive effect on the learning involvement. (2) Positive emotion serves as the intervening variable in the mechanism in which psychological capital has an effect on learning involvement.

3. Experimental Results

3.1. Validation test of variable discriminant validity

Table 1 Comparison of unrestricted and restricted models

	DF	CMIN	P	CMIN/DF	RMSEA	AGFI	GFI
Unrestricted model	27	95.298	.00	3.53	.078	.879	.942
Restricted model	28	285.234	.00	10.187	.148	.735	.868

Table 2 Assuming model unrestricted model to be correct

Model	DF	CMIN	P	NFI Delta-1	IFI Delta-2	RFI rho-1	TLI rho2
Restricted model	1	189.936	.000	.149	.152	.219	.227

The degree of freedom of the unrestricted model of the potential dimension of “psychological capital - learning engagement” is 27, the chi-square value is 95.298 (p=0.000<0.05), the degree of freedom of the restricted model is 28, the chi-square value is 285.234 (p=0.000<0.05), and the comparison summary table of the nested model (Table 2) shows that: The difference of the degree of freedom between the two models is 1 (=28-27) and chi square difference is 285.234-95.298=189.936, the probability value of significance test of chi square value difference p=0.000<0.05 and reaches 0.05 significant level, indicating that there are significant differences between the two measurement models of the unrestricted model and the restricted model. Compared

with the restricted model, the chi-square value of the unrestricted model is significantly smaller, indicating that the difference validity between the two potential dimensions of "psychological capital - learning input' is better.

3.2. The results of the internal consistency reliability test of each questionnaire

Table 3 The results of the internal consistency reliability test of each questionnaire (n=211)

Scale	Sample number	Number of topics	Cronbach'S Alpha coefficient	Subscale	Number of topics	Cronbach'S Alpha coefficient
Psychological capital questionnaire	n=211	26	0.868	Self-efficacy	7	0.864
				Resilience	7	0.861
				Hope	6	0.808
				optimism	6	0.792
Learning engagement questionnaire	n=211	17	0.917	Vitality	6	0.801
				Dedication	5	0.806
	n=439			Focus	6	0.846
Positive emotion questionnaire	n=211	9	0.925	Positive emotion	9	0.925

Reliability mainly shows whether the measurement results have good internal consistency and stability. The higher the consistency, the better the reliability of the scale. The results of reliability analysis are shown in Table 3. The results show that the internal consistency reliability coefficient of the psychological capital scale of college students is 0.868, the internal consistency reliability coefficient of the learning engagement scale is 0.917, and the internal consistency reliability coefficient of the positive emotion scale is 0.925.

As can be seen from Table 3, the reliability coefficient of Cronbach'S Alpha of each scale has reached a good level above 0.85, and the reliability coefficient of each dimension of each scale is above 0.7, reaching an acceptable level of reliability.

3.3. The result of confirmatory factor analysis of various research variables

Table 4 The result of confirmatory factor analysis of the scales (n=211)

Scales	χ^2	df	χ^2/df	TLI	RFI	NFI	IFI	GFI	RMESA
Psychological capital	577.032	293	1.969	0.833	0.810	0.839	0.852	0.823	0.068
Learning engagement	307.929	116	2.655	0.865	0.800	0.830	0.887	0.855	0.08
Positive emotion	178.632	27	2.616	0.844	0.822	0.866	0.884	0.84	0.09

Note: *p＜.05; **p＜.01; ***p＜.001, the same below

This study used AMOS21.0 to conduct confirmatory factor analysis on the scale.In this study, we used χ2/df, RFI, TLI, NFI, IFI, GFI and RMSEA indicators as the model indicators, and determined that the fitting criteria of each index were χ2/df≤3; RFI, TLI, NFI, IFI and CFI≥0.80, the closer to 1 the better, and RMSEA ≤0.1, the closer to 0 the better.

The result of Table 4 shows the chi square test of the psychological capital, that is χ^2/df=1.969<3, and the chi square test of the learning engagement, this is χ^2/df=2.655<3. The χ^2/df of the two scale models is less than 3, so the fitting degree of the model is good. The positive emotion scale is only used in the positive emotion scale in this study, so the chi square test of the positive emotion scale model is χ^2/df=2.616<3, and the fitting degree is better. The indicators of TLI, NFI, IFI and CFI of the psychological capital scale model are all above 0.8, and RMSEA=0.068<0.08, therefore, the

fitting degree of the psychological capital scale model is very good. The indicators of TLI, NFI, IFI and CFI of the psychological capital scale model are all above 0.8, and RMSEA=0.09<0.1, therefore, the fitting degree of the learning engagement scale model is very good. At the same time, the indicators of TLI, NFI, IFI and CFI of the positive emotion scale model are all about 0.8, and RMSEA=0.09<0.10, therefore, the fitting degree of the positive emotion scale model is also very good. Based on the above analysis, it is concluded that the fitting degree of three scale models is good.

3.4. Descriptive statistics and correlation analysis of research variables

The average, standard deviation and correlation coefficient of all the research variables and control variables in this study are shown in Table 5. It can be seen from Table 5 that there is a significant positive correlation between psychological capital and learning input (r=0.54, p<0.01), there is a significant positive correlation between psychological capital and positive emotion (r=0.58, p<0.01), and there is a significant positive correlation between positive emotion and learning engagement(r=0.39, p<0.01). These results are in accordance with the theoretical expectation, and this study will further validate the hypothesis through the structural equation model.

Table 5 Descriptive statistics of demographic variables, psychological capital, learning engagement and positive emotions(n=211)

Variables	*M*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Gender	1.71	0.46	1						
Grade	2.11	0.87	-0.10						
Major	2.20	1.42	0.18**	-0.34*					
Economics	3.93	1.12	0.21**	0.05	0.04	1			
Psychological capital	3.56	0.81	0.03	-0.06	0.08	0.70**	1		
Learning engagement	3.14	0.72	-0.01	0.05	-0.05	0.02	0.54**	1	
Positive emotion	3.44	0.81	-0.13	0.08	-0.16*	0.08	0.58**	0.39**	1

3.5. The difference test between the score of each scale and the demographic variables

By one-way analysis of variance and independent sample T test, there is no significant difference between the variables of each scale in different demographic variables in order to explore the effects of various demographic variables, including gender differences, grade differences, professional experience differences and family economic status differences.

Taking gender as the classified variable, and psychological capital, learning engagement and positive emotion as dependent variables, the independent sample T test is tested(see Table 5). The results show that the score of two variables in the learning engagement and positive emotion of male is slightly higher than that of the female, and the score of psychological capital is lower than that of the female, but the total difference is not obvious, and the gender differences are not significant on the four variables.

Table 6 The T test of each scale in gender

Scales	Gender	M	SD	t	Sig.(two sides)
Psychological capital	male	3.54	0.54	-0.42	0.68
	female	3.57	0.50		
Learning engagement	male	3.14	0.79	0.10	0.92
	female	3.13	0.69		
Positive emotion	male	3.60	0.77	1.95	0.05
	female	3.36	0.82		

With the grade difference as the independent variable, and psychological capital, learning engagement and positive emotion as dependent variables, the one-way analysis of variance is carried out(see Table 7). The results show that the difference of three variables of psychological

capital, learning engagement and positive emotion is not significant in all grades.

Table 7 One-way variance analysis of each scale in grade

Scales	Grade	*M*	*SD*	*F*	Scales	Grade	*M*	*SD*	*F*
	Freshmen	3.65	0.48			Freshmen	3.53	0.76	
Psychological capital	sophomore	3.44	0.44	2.37	Positive emotion	sophomore	3.41	0.83	0.79
	Junior	3.56	0.56			Junior	3.37	0.84	
	Freshmen	3.11	0.75						
Learning engagement	sophomore	3.07	0.71	0.44					
	Junior	3.18	0.71						

Taking the major as independent variable, and psychological capital, learning engagement and positive emotion as the dependent variables, the one-way analysis of variance is carried out(see Table 8). The results show that there is significant difference in positive emotion($F=3.13, P<0.01$), and the scores of psychology and primary education in positive emotion is are significantly higher than those in other majors. There is no significant difference between psychological capital and learning engagement in major.

Table 8 One-way analysis of variance for each scale in specialty

Scale	Major	M	SD	F	Scale	Major	M	SD	F
	Psychology	3.65	0.50			Psychology	3.60	0.82	
	PE	3.42	0.47			PE	3.38	0.78	
Psychological capital	Primary education	3.41	0.62	2.15	Positive emotion	Primary education	3.09	0.86	3.13*
	Educational technology	3.58	0.54			Educational technology	3.60	0.62	
	Pre-school education	3.58	0.38			Pre-school education	3.26	0.72	
	Psychology	3.15	0.75						
	PE	3.26	0.73						
Learning engagement	Primary education	2.99	0.79	0.99					
	Educational technology	3.31	0.71						
	Pre-school education	3.01	0.46						

4. Discussions

4.1. Selection of research variables

By consulting a large amount of literature, China begins to pay attention to the psychological capital of employees, and the Employee Assistance Program (EAP)also becomes popular in China. At present, the study of psychological capital is mostly focused on the employees of the enterprise. A large number of studies have found that psychological capital has a good influence on the job performance and job satisfaction of the employees. There are few empirical studies of psychological capital selecting college students as the sample. Theoretically, psychological capital has a better predictive effect on learning engagement ($R= 0.54, P<0.05$).

4.2. Data analysis method

AMOS is used for discriminant validity analysis, and it is concluded that psychological capital and learning engagement are two different variables. The confirmatory factor analysis further verifies the construct validity of the questionnaire. The construction model has carried out the analysis of the meditating effect.

4.3. Reflection and prospect

The main shortcomings of this study are the selection of mediating variables. Through consulting the literature, the achievement motivation and positive emotion are selected as the mediating variables, however, after the later data processing, it is found that the mediating effect of the two is not significant. On the other hand, the sample number is insufficient, so there will be errors, and the selection of subjects is limited to Qingdao University students, which leads to certain limitations. The stability and applicability of the conclusions need to be further validated by selecting more regions and large samples in order to enhance the reliability of the conclusions.

5. Conclusion

On the basis of this study, we can further explore the effect mechanism of psychological capital on the result variables of college Students' academic performance, learning performance, and learning satisfaction. The results of this study can guide the design and development of relevant teaching practice activities, especially for students who have just entered the university, and the construction of the psychological capital is very necessary.

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