The Relationship Between Locus of Control and Professional Identity of Pedagogical Students: The Mediating Effect of Social Support

Junyue Ye[1, *, +], Yiran Wang[2, +]

[1]School of Mathematical Sciences, South China Normal University, Guangzhou, China

[2]Tianhua College of Shanghai Normal University, Shanghai, China

*Corresponding author: 20202221156@m.scnu.edu.cn

[+]These authors contributed equally

Abstract. For the sake of transforming the “pedagogical students craze" into "teaching craze" recently in China, it is vital to cultivate the professional identity of pedagogical students. In recent years, research in China related to the professional identity of pedagogical students was a small amount, and space to study is still considerable. Based on the mediating effect of social support, the relationship between locus of control and professional identity of pedagogical students will be explored in this study. This results showed that social support has a mediating effect between locus of control and professional identity. The results is somewhat different from the expectation that social support has mediating effect between different locus of control and professional identity of pedagogical students. In the end, this study can provide a theoretical basis for cultivating professional identity of pedagogical students.

Keywords: Professional identity; pedagogical students; locus of control; social support.

1. Introduction

Currently, the competition for comprehensive national strength among different countries is, in the final analysis, the competition for human resources, the development of which is rooted in education. Therefore, it is important to build a quasi-teacher team of high quality. For the moment, the most important way of cultivating pedagogical students in China is to carry out the curriculum of higher normal schools, and others include teaching skills competition, educational practice, etc. This cultivation model tends to pay more attention to theoretical, pedagogical, and subject matter knowledge, but less to the cultivation of professional identity. The professional identity of pedagogical students, as an important factor influencing the quality of students’ learning and future education quality [1], determined the will and belief of pedagogical students to engage in education. According to research content of this study, we will adopt the definition of professional identity of pedagogical students by Wang et al. [2], that is, the perception and experience of pedagogical students on their upcoming teaching career and their current identity as pedagogical students. It will be carried out in four dimensions while measuring: occupational willingness and expectation, occupational will, occupational value, and occupational efficacy.

With the continuous improvement of the definition of professional identity, researchers have divided the factors affecting professional well-being into three types: personal, family, and social factors. According to the research of Huang [3], social factor had the greatest impact on the professional identity of pedagogical students among the above factors. At the same time, social support also covers a variety of social factors affecting professional identity. As a theoretical paradigm, social support originated from social etiology, and it can be decided into objective support and subjective support [4]. According to previous studies [5], the influence of social support involved multiple aspects, including family, friends, colleagues, organization and so on, which were interrelated with the individual. These factors partially overlaped with the factors affecting professional identity mentioned above. Because of this, social support may have a positive correlation with pedagogical students’ professional identity.

According to the research of Deng [6], individual internal factors such as personal practical knowledge, motivation, emotion and attitude, as well as educational values, will affect pedagogical students' perception of teacher identity and professional identity. Locus of control, as people's general views on the outcome of behaviors or events, are a kind of cognition and orientation of their own behavior patterns and result in the interaction between individuals and the surrounding environment [7].

According to the research of Chen [8], positive ways of attribution, which included locus of control and psychological stability, can enhance professional identity. It explained that locus of control has a positive impact on professional identity. In addition, related studies have shown that psychological control source has a positive impact on social support [9], that is, the person that has a good internal control can obtain the actual social support, sense of psychological social support and the utilization of support significantly higher than outer-directed groups, because the former invested more efforts in social activities, and became more flexible and independent. The extension-construction theory of positive emotion also provided a strong theoretical basis for this view. As for the relationship between social support and professional identity, a previous study published by China Nursing Management showed that social support had a positive impact on professional identity [10]. Specifically, friends support was related to professional identity, others support was related to sense of career benefits, family support was related to professional sense of benefit. Summarizing the above, social support may have a mediating effect between locus of control and professional identity of pedagogical students.

To sum up, there are three questions in this study. The first is to explore whether pedagogical students' professional identity is significantly correlated with social support and sense of locus of control. The second is to explore whether pedagogical students' professional identity is significantly positive influenced by social support. The third is to investigate the mediating effect of social support between locus of control and professional identity of pedagogical students.

2. Methods

2.1 Participants

In this study, 362 questionnaires were distributed online in normal colleges and universities, and 257 valid questionnaires were collected, with an effective rate of 71.0%. The valid data were mainly from South China Normal University (74 cases, 28.0%), Hunan Normal University (13 cases, 5.1%) and Hebei Normal University (11 cases, 5.1%), among which 120 (46.7%) were male and 137 (53.3%) were female. There were 13 freshmen (5.1%), 105 sophomores (40.9%), 99 juniors (38.5%), 29 seniors (11.3%) and 11 graduate students (4.3%). The age of participants was from 18 to 29, the average of which was 20.79, and the standard deviation of which was 1.74.

2.2 Measures

2.2.1 Internality, Powerful Others, and Chance Scale (IPC)

This scale was composed of three independent subscales: internal control I, powerful others control P and chance control C, each with eight items, and 5-point scoring standard was used in this study [11]. Each subscale ranged from 0 to 40. Higher scores indicated an individual's tendency to feel in control, Xiao and Chen [12] found that. In the research, the Cronbach's alpha coefficient of I was .71, and the KMO value was .80. The Cronbach's alpha coefficient of P was .90, and the KMO value was .98. The Cronbach's alpha coefficient of C was .86, and the KMO value was .89. The Cronbach's alpha coefficients were higher than .60 while the KMO values were higher than .70, and the Bartlett's test of sphericity were all significant, illustrating that IPC had high reliability and construct validity in this study. In addition, 22 items (92%) in IPC had factor loads above ±.50 [12], illustrating that IPC had good content validity.

2.2.2 Social Support Rating Scale

Compiled by Xiao [12], the scale was divided into three dimensions: subjective support (4 items), objective support (3 items) and the utilization of support (3 items). The scale adopted the item-based scoring method. In the research, the Cronbach's alpha coefficient of this scale was .82, and the KMO value was .84. The Cronbach's alpha coefficient was higher than .60 while the KMO value was higher than .70, and the Bartlett's test of sphericity was significant, illustrating that the scale had high reliability and construct validity in this study.

2.2.3 The Scale of Pedagogical Students' Professional Identity

The scale of Pedagogical Students' Professional Identity used in this study was revised and compiled by Wang et al. [2]. This scale was divided into four subscales from four dimensions: occupational intention and expectation (3 items), occupational will (3 items), occupational value (3 items) and occupational efficacy (3 items). There were 12 items in the scale, using 5-point scoring standard and the reverse scoring mode. In this study, the alpha coefficient of this scale was .74, and the KMO value was .88. The alpha coefficient was higher than .60 while the KMO value was higher than .70, and the Bartlett's test of sphericity was significant, indicating that the scale had high reliability and construct validity in this study.

2.3 Data analysis

SPSS 22.0 and Process V3.3 software were used to process the data by using descriptive statistics, Pearson correlation analysis, bootstrap method, path analysis and other methods.

3. Results

3.1 Gender difference

In dimensions of internal control, authority control and opportunity control, scores of male and female students were significantly different, and general level of internal control of male was significantly higher than that of female, while their general levels of authority control and opportunity control were significantly lower than those of female. There were no significant differences in social support and professional identity between male and female.

Table 1. Gender difference in locus of control, social support and professional identity of pedagogical students

Variable	Male		Female		Levene's-Test	
	M	SD	M	SD	t	p
Internality	32.03	3.47	30.61	4.11	3.01	.00
Powerful Others	13.01	7.88	15.04	6.54	-2.23	.03
Chance	13.79	7.12	16.42	6.38	-3.10	.00
Social Support	26.02	6.12	26.72	5.95	-.93	.36
Professional Identity	50.66	4.62	50.26	4.78	.67	.50

3.2 Correlation analysis

The correlation analysis of locus of control, social support and professional identity of pedagogical students was shown in Table 2. The result indicated that:

(1) Social support was positively correlated with professional identity;

(2) Internal control was positively correlated with social support and professional identity, while authority control and opportunity control were only positively correlated with social support, but not with professional identity;

(3) Opportunity control was positively correlated with authority control.

Table 2. Correlation analysis of locus of control, social support and professional identity of pedagogical students

Variable	M	SD	1	2	3	4	5
1.Internality	31.28	3.88	1				
2.Powerful Others	14.09	7.25	-.04	1			
3.Chance	15.19	6.85	-.06	.87***	1		
4.Social Support	26.39	6.03	.32***	.37***	.38***	1	
5.Professional Identity	50.45	4.70	.44***	.00	-.01	.44***	1

Notes: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

3.3 The analysis of mediating effect

3.3.1 Partial mediating effect of social support between internal control and professional identity

Bootstrap method successively test the mediating effect of social support between internal control and professional identity (see Table 3 for data and Figure 1 for model):

(1) The coefficient of prediction from internality to social support (β_1) was .50, and p value was less than .001, indicating that internal control significantly positively predicted social support;

(2) The coefficient of prediction from social support to professional identity (β_2) was .26, and p value was less than .001, indicating that social support significantly positively predicted professional identity under the premise of controlling internal control orientation;

(3) Indirect effect coefficient was .13, and 95% confidence intervals without including zero was [.0742, .1979], indicating significant indirect effect;

(4) The coefficient of prediction from internality to professional identity (β_3) was .40, more than zero, and p value was less than .001. Regression coefficients β_1 and β_2 were significant, and the product term $\beta_1 \times \beta_2$ and β_3 had the same direction, indicating that social support had a partial mediating effect between internal control and professional identity.

In the mediating effect model of social support between internal control and professional identity, the indirect effect was .13, accounting for 24.47% of the total effect. Social support has a partial mediating effect between internal control and professional identity, and 29.81% of professional identity can be explained by internal control orientation.

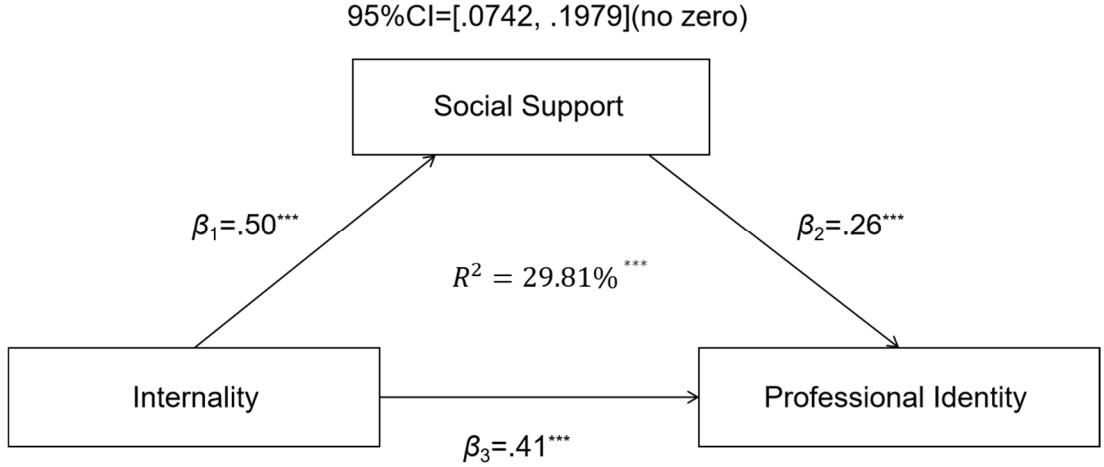


Fig. 1 Partial mediating effect of social support between internal control and professional identity

3.3.2 Masking effect of social support between external control and professional identity

Bootstrap method was used to test if there is a mediating effect of social support between external control and professional identity, and external control contains authority control and opportunity control (see Table 3 for data, Figure 2 and Figure 3 for model):

(1) As for coefficients of prediction from external control to social support(β_1), one from authority control was .31, and the other from opportunity control was .34, while p value were less than .001, indicating that external control significantly positively predicted social support;

(2) As for coefficients of prediction from social support to professional identity (β_2), one from authority control was .40, and the other from opportunity control was .41, while p value were less than .001, indicating that social support significantly positively predicted professional identity under the premise of controlling external control orientation;

(3) As for coefficients of prediction from externality to professional identity (β_3), one from authority control was -.12, and the other from opportunity control was -.14, less than zero, and p value were less than .001, indicating that external control significantly negatively predicted professional identity under the premise of controlling social support;

(4) As for indirect effect coefficients, the one from authority control was .12, the other from opportunity control was .14. Simultaneously, the 95% confidence intervals of which from authority control was [.0806, .1695], and that from opportunity control was [.0874, .1895]. It was found that the 95% confidence intervals of indirect effect coefficients from external control to professional identity were without zero. In addition, indirect effects went in the opposite direction to the direct effect, while total effect were not significant. According to mediation model compiled by Wen [13], social support has masking effect between external control and professional identity.

The masking effect of social support on the relationship between authority control and professional identity was .12, accounting for -102.08% of direct effect. The masking effect of social support on the relationship between opportunity control and professional identity was .14, accounting for -96.88% of direct effect. Social support has a masking effect between external control and professional identity, and 22.71% of professional identity can be explained by authority control, and 23.35% can be explained by opportunity control.

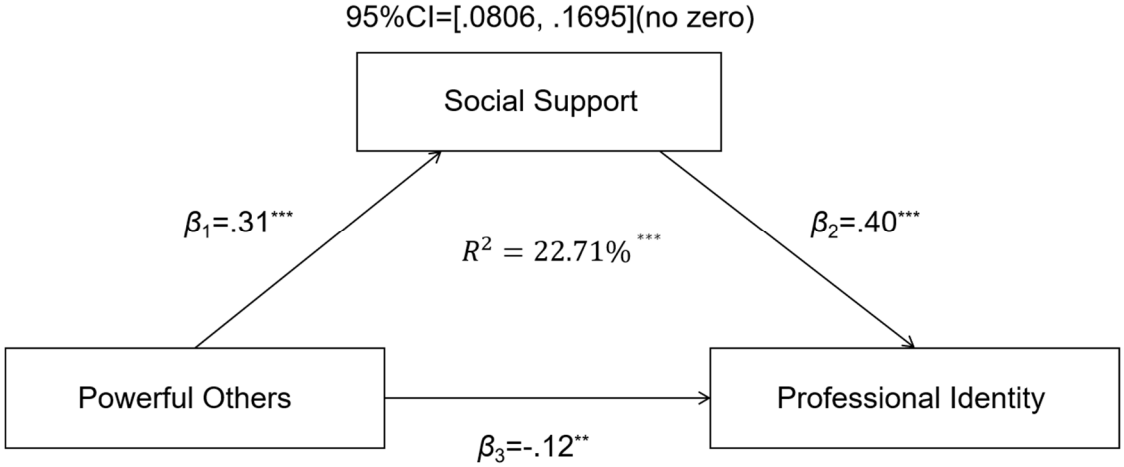


Fig. 2 Masking effect of social support between powerful others control and professional identity

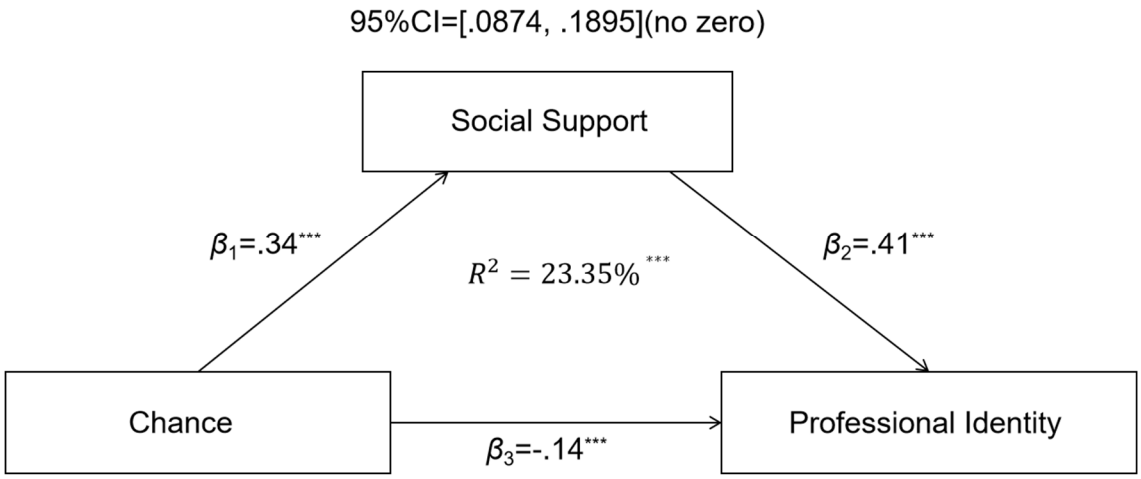


Fig. 3 Masking effect of social support between chance control and professional identity

Table 3. The effect of social support on the relationship between locus of control and professional identity of pedagogical students

Predictive Variable	Path Coefficient				Indirect Effect Coefficient		Fit Coefficient				F
	β_1	p	β_2	p	$\beta_1 \times \beta_2$	95%CI	β_3	p	$\beta_3+\beta_1 \times \beta_2$	R^2	
Internality	.50	.000	.26	.000	.13	[0.0742, 0.1979]	.41	.000	.54	.30	2.00
Powerful Others	.31	.000	.40	.000	.13	[0.0806, 0.1695]	-.12	.002	.00	.23	2.00
Chance	.34	.000	.41	.000	.14	[0.0874, 0.1895]	-.14	.001	-.00	.23	2.00

4. Discussion

4.1 Pedagogical Students' Locus of Control, Social Support, and Professional Identity

In terms of locus of control of pedagogical students, from the perspective of gender, male had slightly higher internal control tendency than female, and slightly lower authority control as well as opportunity control tendency than female. The result of this study was inconsistent with previous studies [14, 15], and it was speculated that the cause for the different conclusions may be related to regional culture, professional background, college differences, family background and so on. Concretely, at first, with the growth of the grade, internal control showed a downward trend. And then, the locus of control of science students trended to the internality and the chance than it of art students. In the while, the locus of control of rural students trended to the internality than it of urban students. What's more, the locus of control of key school students trended to the internality than it of non-key school students.

From the perspective of grade, there were significant differences in the scores of locus of control of pedagogical students between sophomore and senior year, indicating that the period from sophomore to senior year may be the key point of the transformation of locus of control of undergraduates.

As for social support, there were no significant differences between different grades, different genders. According to the result, male social support score was slightly lower than female, which may be because social traditional concept of different gender roles had different expectations, and caused differences in the aspect of social support, in line with previous research conclusion tendency [16].

In terms of professional identity, there was no significant difference between different grades and genders, which was consistent with the research results of Wang et al. [17]. In this study, the score of

professional identity of pedagogical students was generally at a medium level, similar to the data obtained in previous studies [18]. Compared with pedagogical students, the score of professional identity of beginning teacher was higher [19,20]. It was speculated that as pedagogical students, they have less professional experience and less profound understanding of education. They have not yet decided whether to pursue a career in education, so they have a lower professional identity than starting teachers.

4.2 Correlation between Locus of Control, Social Support and Professional Identity

The result of correlation analysis showed that there was a significant positive correlation between internal control and professional identity, while there was no significant correlation between external control and professional identity, which was slightly different from the result of negative correlation between external control and professional identity in previous studies [21]. This means that professional identity of pedagogical students with internal control tendency is relatively high, while influencing factors of external control may not have an obvious impact on professional identity of pedagogical students.

The positive correlation was obvious between social support and professional identity. The higher degree of social support, the more obvious impact on professional identity, and vice versa. This was basically consistent with previous research results [22].

The positive correlation was obvious between three dimensions of locus of control and social support, which supported previous research results and indicated that each dimension of locus of control had a significant predictive effect on social support.

4.3 Mediating Effect of Social Support

The present study found that social support partially mediates the relationship between internal control and professional identity. On the one hand, locus of control affects the growth of occupational psychology. Pedagogical students with internal control tendency will think it depends more on their own ability, whether they can engage in educational work of the expected education stage, and whether they can enter a satisfactory school to teach. In order to improve their professional quality, they are willing to devote a lot of energy to learning professional knowledge and teaching skills training. On the other hand, students who work with internal control tendencies and are dealing with academic pressure and employment dilemma in emotional response will be more inclined to mobilize positive emotions to evaluate and deal with these situations [23]. According to extension-construction theory [24], under the transfer of positive emotion, their processing method is expanded, which greatly increases the possibility of the solution. The change will affect others, and for example, it can obtain others' recognition and finally realize interpersonal construction. The construction of interpersonal relationships enhances their emotional experience and satisfaction of being respected, supported, and understood, as well as enhances their subjective support. The higher level of social support, the more conducive to improving the professional self-efficacy of pedagogical students. So it enhances professional interest and improves professional identity.

Social support has a masking effect between external control and professional identity. On the one hand, individuals with authority control tendency have control potential, so they may realize the transformation to internal control by enhancing their own strength. On the other hand, individuals with the tendency of opportunity control may have a stronger sense of crisis and make more efforts to prevent the risk of "unemployment upon graduation". In this process, they gain more social support and improve their professional identity by internalizing exogenous motivation.

5. Conclusion

The result showed that there were significant correlations between combinations of any two elements among professional identity, social support, and internal control, while the correlation between professional identity and external control was insignificant.

There were some limitations to this study. First, the geographical distribution of answers to the questionnaire was relatively scattered, which caused interference to the reliability of result. Second, an online questionnaire served as a survey form of this study conducted during the summer vacation, and it was limited in controlling the two independent variables, recovery rate and the seriousness of the answer, which had impact on the validity of the results.

This study can provide a theoretical basis for the cultivation of professional identity. From the result of this study, social support not only affected professional identity, but also affected the relationship between locus of control and professional identity. This discovery provides new ideas for future researchers to explore teacher training from the perspective of professional identity and locus of control. It also provides some effective methods to improve teachers' professional identity: improving teachers' social reputation and status, regularly carrying out lectures on teachers' skills and career planning, and encouraging pedagogical students to actively participate in social practice activities related to teaching. All of them improve the professional identity of pedagogical students and lay a good foundation for them to grow into excellent teachers.

References

[1] Qi Peifang & Bo Yanling. Thoughts on cultivating professional identity of high school teachers and students. Education Development Research (Z2), 2007, 109-111.

[2] Wang Xinqiang, Zeng Lihong, Zhang Dajun & Li Sen. Preliminary preparation of professional identity scale of Normal University Students. Journal of Southwest University (Social Sciences Edition) (05), 2020, 152-157.

[3] Huang Youchu.Research on the professional identity and influencing factors of pre-service Teachers. Journal of Shanghai Normal University (Philosophy and Social Sciences edition). 2021, (04), 99-106.

[4] Li Qiang. Social support and individual mental health. Tianjin Social Sciences, 1998, (01): 67-70.

[5] Xiao Shuiyuan. Theoretical basis and research application of the Social Support Rating Scale. Journal of Clinical Psychiamedicine, 1994, 02.

[6] Deng Tingting, Diao Jiaxi, Zhu Hong, Yang Jiaxin & Xie Dan. (2022). Summary of Professional identity research of Normal University Students. Psychological Monthly, 2022, (11), 237-240.

[7] Cao Jina. Research on the relationship between psychological control source and self-reflection among college students (master's thesis, Chongqing University), 2010.

[8] Chen Hongzhuo, Zhang Caiyun, Ban Jiajia & Zhang Ping. Impact factors and intervention status. Modern clinical Care, 2015, (07): 77-80.

[9] Dai Hui & Yi'an Lee. The influence of psychological control source and social support on the positive psychology of college students. The Chinese Journal of Health Psychology, 2008, (08), 855-857.

[10] Wei Min & Zhang Lehua. Study on the influence of social support on nurses' professional identity. Nursing Management in China, 2009, (06), 47-49.

[11] Levenson H. Additional dimensions of internal-external control. Journal of Social Psychology, 1975, 97: 303-304.

[12] Xiao Li & Chen Zhonggeng. Preliminary analysis of College Psychological Control Source Structure and IPC Scale. Applied Psychology, 1989, (02): 22-27.

[13] Wen Zhonglin & Ye Baojuan. Analysis of mediation effects: method and model development. Progress in Psychological Science, (2014), (05), 731-745.

[14] Xu Zhining. Adolescent psychological control sources and their effects on daily behavior. Contemporary Youth Studies, 2021, (09): 76-80.

[15] Li Mu. Research on the psychological control sources and coping methods of senior two students (master's thesis, Sichuan Normal University), 2008.

[16] Zhang Qi & Wang Jin. The relationship between college student self-esteem and social support. Psychological and Behavioral Research, 2007, (02): 93-99.

[17] Wang Lanying, Zhong Fenghong, Hu Dongmei & Ma Ying. Investigation and Study of Medical Students. Journal of Hubei Correspondence University, 2018, (14): 33-34.

[18] Ye Xuelan, Zhang Wanting, Zhang Siqi, Lin Qiuchun & Chen Xiaoxia. Investigation and analysis of professional identity and countermeasures. Modern Vocational Education, 2019, (34): 280-281.

[19] Liu Sha & Deng Jie. (2021). Investigation on the Current Situation of Professional Recognition of Primary School Teachers. Mass Standardization, 2021, (17): 86-88.

[20] Yang Nan & Qin Long. Investigation on the status of professional identity among senior teachers and students. Modernization of Education, 2018, (31): 289-290.

[21] Liu Ling, Hao Yufang, Li Liping & Liu Xiaohong. The Correlation of Psychological Control Source and Professional Identification in College Nursing Students. Journal of Nursing, 2010, (02), 4-6.

[22] Gao Xiaomin. Research on the relationship between Professional identity and Social Support. Journal of Inner Mongolia Normal University (Education Science edition), 2011, (08), 44-47.

[23] Zhang Jie. (2018). The Impact of Social Support on Vocational Self-efficacy of Higher Vocational Preschool Education Intern. Journal of Liupanshui Normal University, 2018, (06), 58-64.

[24] Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. Phil. Trans. R. Soc.