Original Research Article

Research on the Factors Influencing the Enthusiasm to Learn Professional Courses of College Students Majoring in Mathematics

ABSTRACT: It is important to analyze the influencing factors of college students' enthusiasm to learn professional courses, in order to fully mobilize their enthusiasm to learn professional courses, enrich their professional knowledge, and improve the quality of university teaching. This study uses questionnaires and multiple linear regression analysis to investigate the main factors influencing the enthusiasm to learn professional courses of college students majoring in mathematics and came to the following conclusions: (1) Considering the four dimensions of personal, school, society and family, personal factors are the main factors influencing the enthusiasm to learn professional courses of college students majoring in mathematics. (2) Considering the specific factors, self-management, teacher-student relationship, and employment situation are the main factors influencing the enthusiasm to learn professional courses of college students majoring in mathematics. Based on the above analysis, targeted suggestions are made: First, students themselves should play active initiative and strengthen their self-management awareness. Secondly, teachers of professional courses should strengthen communication with students and establish a harmonious relationship between teachers and students. Third, society should actively provide a platform for college students to choose their careers and employment, and create a fair and just social employment environment.

Keywords: College Students, Learning, Enthusiasm, Mathematics

1. INTRODUCTION

The period of college is a golden time for students to learn and accumulate knowledge, and the university is no longer about receiving an extensive basic education, but more about professional courses. Furthermore, considering the form of employment, there are higher requirements for the professionalism of college students. The learning enthusiasm of college students refers to a conscious and active psychological state of college students in learning activities, which is the driving force to stimulate learning, maintain learning, and direct learning to a certain determined goal [**Error! Reference**

source not found.]. Learning enthusiasm is related to students' learning efficiency, the acquisition of their knowledge and skills, and the formation and development of their good psychological and moral qualities [**Error! Reference source not found.**]. For mathematics majors, their professional knowledge has the characteristics of logic and abstraction. By reviewing the literature and observing the real situation, students of mathematics majors have a wide range of performance of enthusiasm to learn professional courses. At present, scholars' research on the learning enthusiasm of college students mainly contains three aspects, which are the current situation of learning enthusiasm of college students, the influencing factors of learning enthusiasm of college students, and the suggestions and strategies to improve the learning enthusiasm of college students. As for the influencing factors, the conclusions obtained from the existing literature are generally broad and wide, but the major influencing factors are not founded now. And most of the scholars have given the influencing factors by literature analysis and discursive methods without the support of realistic survey data, and no scholars have yet analyzed the relationship between the influencing factors and the degree of learning enthusiasm of each sample, so the reliability of the conclusions needs to be further improved. In addition, the existing studies are carried out for a broad group of college students, and the research on the enthusiasm for professional course learning of college students majoring in mathematics is still blank. Therefore, it is of great practical significance to analyze the factors influencing the enthusiasm for professional course learning of college students majoring in mathematics, in order to fully mobilize their learning enthusiasm and improve the quality of university teaching.

The research question in this paper is: (1) What are the main factors influencing the enthusiasm for professional course learning of college students majoring in mathematics? (2) Based on the results of the study, what are the countermeasures to improve the enthusiasm to learn professional courses of college students majoring in mathematics?

2. RESEARCH METHODS

2.1 Participants

This study was conducted on 74 college students majoring in mathematics at Shandong

Normal University, including 25 males and 49 females; 10 in the first year, 9 in the second year, 27 in the third year, and 28 in the fourth year. Details of the survey sample are shown in **Table 1**.

Table 1: Survey sample situation

Category		Number	Percentage
Gender	Male	25	33.8
	Female	49	66.2
Grade	Freshman	10	13.5
	Sophomore	9	12.2
	Junior	27	36.5
	Senior	28	37.8

2.2 Instrument

2.2.1 Test Questions

The test questions are designed for the current status of enthusiasm to learn professional courses of college students majoring in mathematics. 10 questions are set from the following aspects: class attendance, study plan, homework completion, after-class study, pre-study and revision, attitude toward difficult problems, and performance in major courses.

2.2.2 Questionnaire

The survey questionnaire was designed for the factors influencing the enthusiasm to learn professional courses of college students majoring in mathematics and was developed from four dimensions: personal factors, school factors, social factors, and family factors. The questionnaire involves 9 personal factors: professional cognition, professional learning interest, learning goal, learning enthusiasm, learning attitude, learning method, self-efficacy, self-management ability, and learning pressure, 6 school factors: teachers' teaching, course assessment methods, teacher-student relationship, learning atmosphere, hardware facilities, and teaching management mechanism, 2 society factors: employment situation and social climate, and 2 family factors: parents'

concern and parents' expectation. In total, there are 4 dimensions, concluding 19 questions.

2.2.3 Reliability and Validity Tests of Test Papers and Questionnaires

2.2.3.1 Reliability Test

In this study, Cronbach's coefficient was used to test the reliability of the test paper and the questionnaire. After excluding the multiple choice questions, the Cronbach's coefficients of the test paper and the questionnaire were calculated to be 0.756 and 0.721 respectively using SPSS. They indicate that the internal consistency of the scale is good, and the questionnaire can be considered to have good reliability. The detailed data of Cronbach's coefficient test are shown in **Table 2**.

Table 2: Cronbach's α

	Cronbach's α	Number
Test paper	0.756	10
Questionnaire	0.721	17

2.2.3.2 Validity Test

In this study, five experts were invited to assess the content validity of the test paper and the questionnaire, and the overall average scores of the test paper and the questionnaire were 0.85 and 0.80, respectively. So the experts' opinions were combined and it was agreed that the test paper and the questionnaire of this study had good content validity.

2.3 Data Collection

Using the online platform, test questions and questionnaires were collected in the same link for the survey sample, and a total of 74 valid questionnaires were collected.

2.4 Data Processing

2.4.1 The Tools of Data Processing

Data analysis was performed with the help of EXCEL and SPSS. Specifically, the quantification of questions was performed with the help of EXCEL, and the reliability validity test, multiple regression analysis, Kirkland test for multiple choice questions, and cross-tabulation analysis statistics of test questions and questionnaires were performed with the help of SPSS.

2.4.2 Data Pre-processing

In the test paper, the degree of learning enthusiasm as reflected by the options of the 10 questions investigating the current status of learning enthusiasm in professional courses was assigned in decreasing order of 4, 3, 2, and 1 points, respectively. The current level of enthusiasm will be used as the dependent variable in this study.

In the questionnaire, among the 19 questions on the influence of different factors on the enthusiasm of the sample, 17 questions on "professional awareness", "interest in professional learning", "learning goals", "learning attitude", "self-efficacy", "self-management ability", "learning pressure", "teacher teaching", "course assessment methods", "teacher-student relationship", "learning atmosphere", "hardware facilities", "teaching management mechanism", "employment situation", "social climate", "parents' concern", "parents' expectation" are single-choice questions with decreasing degrees of influence on the enthusiasm of the sample, which are assigned 4, 3, 2 and 1 points respectively. The two questions "learning enthusiasm" and "learning method" were multiple choice questions, in which the results of the multiple choice question "learning method" were further quantified by assigning a score of 4, 3, 2, and 1 to the sample's learning method from good, good, average, and bad, respectively, according to the number of learning methods chosen by the sample, which were jointly quantifiable variables with the 17 single choice questions mentioned above. The purpose of the multiple choice question "learning motivation" was to analyze the specific enthusiasms that influence the enthusiasm to study in a professional course, which will be discussed and analyzed separately in this study. For the analysis of the multiple choice questions, each question was coded according to the dichotomous method of multiple choice questions, i.e., each multiple choice question was divided into several single choice variables with two options, 0 being unchecked and 1 being checked, for subsequent

data processing. Each influencing factor will be used as the independent variable in this study.

3. RESULTS

3.1 The Degree of the Enthusiasm to Learn Professional Courses of College Students Majoring in Mathematics

The scores of 10 questions in the survey of the degree of enthusiasm in professional courses test papers were averaged to get the current score of each sample, and finally, the highest score of the sample was 3.7, the lowest score was 1.6, and the average score was 2.8. It can be seen that, on the whole, college students in mathematics are not very enthusiastic about learning professional courses.

For subsequent data analysis, the difference between the highest and lowest scores of the test paper divided by the value of 3 was used as the spacing for classifying the grades, thus classifying the degree of enthusiasm to learn the major courses into three grades: high, medium, and low, corresponding to 3.0-3.7, 2.3-2.9, and 1.6-2.2 points. The results of the classification are shown in **Table 3**.

Table 3: Classification of Enthusiasm Level

The Degree of Enthusiasm	Score	Number
High	3.0–3.7	28
Medium	2.3–2.9	39
Low	1.6–2.2	7

3.2 The Factors Influencing the Enthusiasm to Learn Professional Courses of College Students Majoring in Mathematics

3.2.1 Consider Four Dimensions

Starting from the four dimensions of personal, school, society, and family, we first calculated the average score of each sample on the topics contained in each dimension to obtain the score of each sample in each dimension and used them as four independent

variables.

The degree of learning enthusiasm score of each sample was used as the dependent variable y, and the above four impact dimensions were used as independent variables for multiple linear regression analysis using SPSS. The VIF of all four independent variables was tested to be less than 5, so there was no multicollinearity among the four independent variables. The regression equation was significant, $F=5.844$, $p<0.001$, implying that at least one of the four independent variables could influence the dependent variable. The specific results of multiple linear regression are shown in **Table 4**.

Table 4: The Specific Results of Multiple Linear Regression(Consider from four dimensions)

Model	Unstandardized Coefficient		Standard Coefficient	t	Significance	VIF
	B	Standard Error	Beta			
(Constant)	0.897	0.424		2.118	0.038	
Personal Factor	0.386	0.115	0.368	3.346	0.001	1.117
School Factor	0.215	0.128	0.208	1.689	0.096	1.405
Society Factor	0.029	0.056	0.061	0.513	0.609	1.324
Family Factor	0.011	0.059	0.020	0.192	0.848	1.03

The results of the multiple linear regression show that the regression coefficient of the personal factor is the largest at 0.368, so when the personal factor changes by 1 unit, the degree of enthusiasm changes by 0.368 units in the same direction. And the significance of the personal factor is 0.001, lower than 0.05, indicating that the factor significantly affects the dependent variable and is positive.

3.2.2 Consider the Specific Factors

The 18 specific factors, including professional perception, professional learning interest, learning goal, learning method, learning attitude, self-efficacy, self-management ability, learning pressure, teacher teaching, course assessment

method, teacher-student relationship, learning atmosphere, hardware facilities, teaching management system, employment situation, social climate, parental concern, and parental expectation, were taken as 18 independent variables.

The degree of learning enthusiasm score of each sample was used as the dependent variable y, and the 18 influencing factors mentioned above were used as independent variables for multiple linear regression analysis using SPSS. The VIF of all 18 independent variables was tested to be less than 5, so there was no multicollinearity among the 18 variables. F=3.436, the regression equation was significant, $p<0.001$, implying that at least one of the 18 independent variables could influence the dependent variable. The specific results of multiple linear regression are shown in **Table 5**.

Table 5: The Specific Results of Multiple Linear Regression (Consider the specific factors)

Model	Unstandardized Coefficient		Standard Coefficient	t	Significance	VIF
	B	Standard Error	Beta			
(Constant)	1.314	0.474		2.775	0.008	
Professional Perception	-0.034	0.091	-0.046	-0.373	0.71	1.76
Learning Interest	0.07	0.094	0.118	0.746	0.459	2.907
Learning Goal	-0.082	0.087	-0.142	-0.941	0.351	2.672
Learning Attitude	-0.007	0.09	-0.008	-0.072	0.943	1.524
Learning Method	0.057	0.049	0.141	1.154	0.253	1.746
Self-efficacy	-0.14	0.089	-0.23	-1.58	0.12	2.477
Self-management Ability	0.222	0.066	0.463	3.346	0.001	2.239
Learning Pressure	0.001	0.054	0.001	0.012	0.99	1.543
Teacher Teaching	0.075	0.066	0.139	1.146	0.257	1.715
Course Assessment	-0.039	0.062	-0.087	-0.634	0.529	2.202
Teacher-student Relationship	0.233	0.068	0.401	3.447	0.001	1.582
Learning Atmosphere	0	0.069	-0.001	-0.006	0.995	1.621
Hardware Facilities	0.152	0.087	0.229	1.759	0.084	1.983
Teaching Management	-0.001	0.078	-0.002	-0.011	0.991	2.402

Employment Situation	0.173	0.08	0.38	2.162	0.035	3.617
Social Climate	-0.135	0.073	-0.31	-1.843	0.071	3.311
Parental Concern	0.034	0.046	0.084	0.739	0.463	1.498
Parental Expectation	-0.044	0.055	-0.089	-0.795	0.43	1.453

The results of the multiple linear regression analysis show that the regression coefficients of self-management, teacher-student relationship, and employment situation are relatively large, 0.643, 0.401, and 0.380, respectively, when self-management changes by 1 unit, the degree of enthusiasm will change by 0.643 units in the same direction; when teacher-student relationship changes by 1 unit, the degree of enthusiasm will change by 0.401 units in the same direction; when employment situation changes by 1 unit, the degree of enthusiasm will change by 0.380 units in the same direction. The degree of enthusiasm changes by 0.380 units. The significance of "self-management" is 0.001, which is lower than 0.05, the significance of "teacher-student relationship" is 0.001, which is lower than 0.05, and the significance of "employment situation" is 0.035. Significance = 0.035 < 0.05, indicating that these three factors significantly affect the dependent variable.

3.2.3 The Influence of Learning Motivation

First, the Cochran test was used to test whether there was a significant difference in the sample distribution of the multiple choice question "learning motivation", and the Cochran Q of this question was 127.277 using SPSS, with an asymptotic probability of significance is less than 0.01, indicating that there was a significant difference in the learning enthusiasm of the mathematics majors in this survey. The specific test results are shown in **Table 6**.

Table 6: The Cochran Test (the multiple choice question)

	the multiple choice question "learning motivation"
Cochran Q	127.277[a]
Asymptotic Probability of Significance	.000

Based on the results of the previous data processing, the number of students with

different degrees of enthusiasm was analyzed using SPSS cross-tabulations. Most of the students with high enthusiasm had the motivation "to gain knowledge and improve me", accounting for 85.7%; most of the students with low enthusiasm had the motivation "to graduate (pass the exam)", accounting for The majority of students with low enthusiasm include "to graduate (pass the exam)", accounting for 71.4%. The specific statistics are shown in **Table 7**.

Table 7: Statistics of the Number of People whose Learning Motivation Corresponds to Different Degrees

Learning Motivation	Degrees of Enthusiasm			Total Number
	1	2	3	
To satisfy learning interests	2	15	11	28
To gain knowledge and improve me	1	23	24	48
To find a good job	5	27	18	50
To be guaranteed to graduate school	2	6	7	15
To enter graduate school	4	19	10	33
To get good grades	3	22	14	39
To get a scholarship	3	14	11	28
To graduate successfully (pass the exam)	5	17	9	31
To meet the expectations of parents	1	13	6	20

4. DISCUSSION

From the results of multiple linear regressions of four dimensions, namely, personal factors, school factors, social factors, and family factors, it was found that the significance of the independent variable "personal factors" was less than 0.05, which significantly influenced the dependent variable "the degree of enthusiasm to study in professional courses". The regression coefficient is the largest and most positive; while the significance of the remaining independent variables is greater than 0.05, which means that these variables do not have a significant influence on the degree of enthusiasm for professional course learning. From the viewpoints of scholars such as Jia [**Error! Reference source not found.**], Hu [**Error! Reference source not found.**], Li [**Error! Reference source not found.**], and Zhu [**Error! Reference source not found.**], the independent variable that significantly influences the dependent variable is

the main influencing factor. So the personal factor is the main factor influencing the enthusiasm to learn professional courses of college students majoring in mathematics.

From the results of the multiple linear regression of the 18 specific influencing factors, we found that the significance of the three independent variables "self-management", "teacher-student relationship" and "employment situation" were all less than The regression coefficients are relatively large, and all of them are positive; while the significance of the other independent variables is greater than 0.05, which means that these variables have no significant influence on the degree of the enthusiasm to learn professional courses. The independent variables that significantly influence the dependent variable are the main influencing factors, so self-management, teacher-student relationship, and employment situation are the main factors influencing the enthusiasm to learn professional courses of college students majoring in mathematics.

In addition, from the results of the cross-tabulation analysis of the specific factors influencing the enthusiasm to learn professional courses, it was found that the motivation of most of the students with high enthusiasm includes "to gain knowledge and improve oneself", and the motivation of most of the students with low enthusiasm includes "To graduate (pass the exam)". Therefore, the learning motivation of "to gain knowledge and improve oneself" has a positive effect on the enthusiasm to learn professional courses of college students majoring in mathematics, and the learning motivation of "to graduate (pass the exam)" has a negative effect on the enthusiasm to learn professional courses of college students majoring in mathematics.

5. CONCLUSION

5.1 Conclusions of the research

Considering the four dimensions of personal factors, school factors, social factors, and family factors, the enthusiasm to learn professional courses of college students majoring in mathematics depends more on their subjective factors, and personal factors are the main factors influencing the enthusiasm to learn professional courses of college students majoring in mathematics.

Considering the specific factors, self-management, teacher-student relationship, and employment situation are the main factors that influence the enthusiasm for professional course learning of college students majoring in mathematics. Therefore, good self-management ability, a harmonious teacher-student relationship, and good employment form have a greater positive impact on the enthusiasm for professional course learning of college students majoring in mathematics. In addition, from the specific factors, considering the learning motivation, the learning motivation of "acquiring knowledge and improving oneself" has a greater positive impact on the learning enthusiasm of specialized courses, while the learning motivation of "successfully graduating (passing the exam)" has a greater negative impact on the learning enthusiasm of professional courses.

5.2 Countermeasures and suggestions

Based on the research results, the following suggestions are given to improve the enthusiasm of college students majoring in mathematics in learning professional courses: Firstly, from the aspect of students themselves, the bearer of students' learning enthusiasm is the students themselves. Students should give full play to their positive subjective initiative, actively explore the fun of professional learning, correct their learning motivation and attitude, formulate clear learning objectives, and find suitable learning methods for their professional courses. More should strengthen self-management consciousness, reasonable arrangement of work and rest time, and improve self-control ability. Second, in terms of teachers teaching, teachers of professional courses should strengthen communication with students, strengthen teacher-student interaction in class, and increase communication with students after class, timely observe the learning situation of students' professional courses, the organic combination of teachers' "teaching" and students' "learning", and establish a harmonious relationship between teachers and students. Third, from the aspect of society, society should actively provide a platform for college students to choose and find jobs. Social enterprises should provide professional internship and practice positions so that students can have the willingness, ability, and opportunity to engage in employment in their major when they graduate, so as to create a fair and just social employment environment.

6. DEFICIENCY AND PROSPECT

The shortcomings of this study are as follows: first, the samples in this study are only from one university, with a small number of samples, and the representativeness of the samples is not good enough. Subsequent studies can increase the number of samples and expand the selection range of samples. Second, this study only uses the method of multiple linear regression to find the relationship between independent variables and dependent variables, and subsequent studies can explore the method of nonlinear regression to further improve the accuracy of research results.

REFERENCE

1. Bai JH. Research on the Causes and Solutions of College Students' Learning Burnout [J]. Education and Teaching Forum, 2018, (13):91-93.
2. Cai FJ. and Wang YQ. How to Stimulate the Learning Enthusiasm of College Students [J]. Curriculum Education Research, 2017, (05):80.
3. Cheng SZ. Current Situation and Existing Problems of College Students' Learning Initiative [J]. Enterprise Research, 2013, (14):173-174.
4. Gao QF., Zhang K. and Li J. Study on the Influencing Factors and Countermeasures of College students' Learning Initiative [J]. Education Modernization, 2020, 7(50):174-177.
5. Gao YN. Analysis of Factors Influencing College Students' Enthusiasm in Learning Professional Knowledge and Countermeasures [J]. Jiangsu Business Theory, 2018, (03):117-119+124.
6. He L. and Lu XG. Thinking on Improving college students' learning Initiative [J]. Education Modernization, 2019, 6(82):184-185+188.
7. Hu Q. Analysis of Factors Influencing College English and Math Scores [D]. Tianjin University of Finance and Economics, 2017.
8. Jia YY. Research on Influencing Factors of Teaching Skill Learning Involvement of Mathematics Normal University Students [D]. Shandong Normal University, 2022.
9. Kang MX. and Wang DH. Analysis of Reasons and Countermeasures for College students' Lack of learning Enthusiasm [J]. Comparative Research on Cultural Innovation, 2018, 2(19):118-119.
10. Lu JF., Ying RH., Jiang JP., Ning KJ. and Feng B. M. Discussion on Factors and

Strategies Affecting College Students' Learning Enthusiasm [J]. Journal of Anhui University of Science and Technology, 2013, 27(01):100-103.

11. Liu RJ. Investigation on the Current Situation and Countermeasures of College Students' Learning Enthusiasm [J]. Education and Occupation, 2008, (33):191-192.
12. Li XL. Empirical Analysis of Influencing Factors of Construction Industry in China [D]. Central China Normal University, 2014.
13. Peng YL. and Li SQ. Research on Countermeasures to Improve College students' Learning Enthusiasm [J]. University Education, 2012, 1(04):39-40.
14. Shi ML. Analysis on the Causes of Low Learning Enthusiasm of College Students [J]. Reform and Opening Up, 2012, (02):168-169.
15. She ZQ. and Shi L. Research on the Causes and Countermeasures of College Students' Lack of Learning Enthusiasm [J]. Science and Technology Wind, 2019, (36):193+202.
16. Su YR. Current Situation and Countermeasures of College students' Learning Enthusiasm [J]. Journal of Hubei Adult Education University, 2009, 15(02): 14-15.
17. Tang L. Influencing Factors and Countermeasures of College students' Learning Initiative [J]. Journal of Jiangsu Institute of Technology, 2007, 8(1):52-54.
18. Wei HT. and He ZZ. The Causes and Solutions of Students' Low Learning Enthusiasm [J]. Western Quality Education, 2019, 5(10):108+110.
19. Wang MX. , Wang ZY. and Ruan JL. Study on Improving College Students' Enthusiasm in Learning Specialized Courses [J]. Going Abroad and Employment (Employment Edition), 2012, (01):121-122.
20. Wang YH. , Wu DD. and Li F. Research on the Factors Influencing College Students' Learning Enthusiasm and Countermeasures [J]. Journal of Henan University (Social Science Edition), 2006, (05):163-168.
21. Wang ZQ. Research and Countermeasures on College students' Learning Initiative [J]. China Adult Education, 2010, (02):108-110.
22. Xu FY. , Song XH. Investigation on Factors Influencing College Students' Learning Initiative and Countermeasures [J]. Curriculum Education Research, 2013, (01):55-57.
23. Xu H. Analysis on the Causes and Countermeasures of College Students' Learning Burnout [J]. Journal of Liaoning Higher Vocational Education, 2010, 12(03):103-106.

24. Yan LY. Investigation and Analysis of Factors Influencing College Students' Learning Initiative and Countermeasures [J]. Journal of Jinzhong University, 2006, (02): 74-77.
25. Yang XY. and Zhang M. The Causes and Countermeasures of College Students' Lack of Enthusiasm in Learning [J]. Science and Technology Innovation Review, 2015, 12(24):239-240.
26. Ye B. and Chen DD. Analysis of Factors Influencing College Students' Learning Enthusiasm and Countermeasures [J]. New Campus (First Ten Days), 2015, (02):190.
27. Zhang CY. Investigation and Analysis on the Current Situation of College Students' Learning Enthusiasm [J]. Journal of Xingyi Teachers College for Nationalities, 2017, (01):70-74.
28. Zhang CQ. and Liu XH. Research on the Current Situation of Students' Learning Enthusiasm [J]. Education and Teaching Forum, 2018, (18):260-261.
29. Zhang L. Strategies to Improve College Students' Learning Initiative [J]. Henan Agriculture, 2016, (21):18-19.
30. Zhang WG. , Feng SK., Yi XM., You F., and He XY. Analysis of the Factors Influencing College Students' Learning Enthusiasm [J]. Education and Teaching Forum, 2018, (31):52-54.
31. Zhang Y. Discussion on How to Improve College Students' Learning Enthusiasm [J]. Education and Teaching Forum, 2015, (52):47-48.
32. Zhang YY. and Yang PS. Investigation, Analysis, and Countermeasures of College Students' Learning Enthusiasm [J]. Modern Enterprise Education, 2014, (08): 109-110.
33. Zhang YS. , Zhang MM. , Feng KL., Liu JY., Zhou SY., and Miao QN. Analysis of Factors Influencing College students' Learning Enthusiasm [J]. Journal of Henan University of Science and Technology, 2016, 36(02):42-44.
34. Zhao L. and Zhao J. Analysis on the Influencing factors of college students' Learning Burnout [J]. Education Modernization, 2017, 4(36):285-287.
35. Zhu Y. Study on Learning Engagement and Its Influencing Factors of Secondary Vocational Students [D]. Central China Normal University, 2022.