A study on the learning motivation of college students based on online and offline teaching mode

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Abstract: This study aims to improve the learning motivation and academic level of Chinese college students. Under the online and offline teaching mode, the "College Students' Learning Motivation Questionnaire" was used to investigate the learning motivation of college students in the experimental group (college students participating in the online and offline teaching mode) and the control group (college students not participating in the online and offline teaching mode). The average value of college students' knowledge pursuit is higher than the theoretical average value. The average values of college students' learning motivation and three dimensions (ability pursuit, reputation acquisition and altruistic orientation) are all lower than the theoretical average values. The experimental group (college students participating in the online and offline teaching mode program) has significantly higher knowledge pursuit than the control group (college students not participating in the online and offline teaching mode program). In the experimental group participating in the online and offline teaching mode program: female college students had significantly higher mean scores in reputation acquisition than male students; college students whose families are located in rural areas had significantly lower mean scores in knowledge pursuit and reputation acquisition compared to those from urban areas; non-student leader college students had significantly higher scores in knowledge pursuit and reputation acquisition than student leader college students; poor college students had significantly higher scores in altruistic orientation than their non-poor college students. Focus on the systematic cultivation of learning motivation. Optimize teaching methods to stimulate students' initiative. Pay attention to the differences among student groups. Create a supportive and empowering educational environment. Promote the improvement of educational evaluation and incentive mechanisms.

1. Introduction

Against the background of the continuous expansion and deepening of higher education, the learning motivation of college students has received increasing attention. As a psychological mechanism that drives students to participate in learning, maintain learning behavior and pursue academic goals, learning motivation is directly related to learning efficiency and learning quality. However, in reality, many college students have low learning motivation. Some students are in a passive state during the learning process, which to a certain extent affects the quality of education and the all-round development of students in higher education [1-2].

For a long time, traditional college teaching has generally been mainly in the form of offline teaching, emphasizing teacher-centeredness, unified progress and classroom indoctrination. In today's environment where the demand for digital and autonomous learning is increasing, the limitations of this single teaching mode are gradually emerging. On the one hand, teaching in a fixed time and space limits the possibility of personalized learning for students; on the other hand, the lack of opportunities for students to actively construct knowledge in offline classes may also lead to a weakening of learning interest and insufficient sense of participation, further weakening the maintenance and development of their learning motivation. Traditional teaching methods are difficult to adapt to the current diversified, interactive and flexible learning needs of students, and new teaching concepts and technical means are urgently needed to supplement and innovate them [3-7].

Scholar Graham believes that the essence of the online and offline teaching mode is to combine the advantages of face-to-face teaching and online learning to reorganize and implement teaching activities in order to achieve the purpose of optimizing teaching effects [8]. Chinese scholar He Kekang believes that online and offline teaching is a learning method that integrates the advantages of traditional learning and digital learning, and not only gives full play to the leading role of teachers in guiding, inspiring and monitoring the teaching process, but also gives full play to the initiative, enthusiasm and creativity of students as the main body of the learning process [9]. The online and offline teaching mode is a powerful supplement and upgrade of traditional teaching. The online and offline teaching mode carried out in this study is to effectively combine offline teaching with online network learning.

Some studies have shown that the online and offline teaching mode has many educational advantages, especially in stimulating students' learning motivation. On the one hand, this mode breaks the closedness and monotony of traditional classrooms, enriches learning content and interactive forms, can better meet the interests and rhythms of different students, and enhance their learning initiative and sense of responsibility; on the other hand, through the instant feedback, peer collaboration and diversified evaluation of the technology platform, students can gain more sense of achievement, belonging and self-worth in learning, thereby effectively promoting the internalization and sustainability of their learning motivation [7,10,11,12]. Based on this, in-depth exploration of the role of online and offline teaching mode in improving college students' learning motivation has important theoretical value and practical significance.

2. Research methods

2.1 Research subjects

This study selected 440 college students from 10 classes at a university in China as research participants and conducted a questionnaire survey. Among them, 132 students who did not participate in the online and offline teaching mode program formed the control group, while 308 students who did participate in the program formed the experimental group.

The experimental group included: 58 male students and 250 female students; 160 students whose families are located in rural areas, and 148 students from urban areas; 160 student leaders and 148 non-student leaders; 155 poor students and 153 non-poor students.

2.2 Research methods

This study uses a questionnaire survey method. The "College Student Learning Motivation Questionnaire" was used to investigate and compare the learning motivation of college students in the experimental group (college students participating in the online and offline teaching mode) and the control group (college students not participating in the online and offline teaching mode). At the

same time, the learning motivation of all college students participating in the teaching reform program on the "online and offline teaching mode" was also analyzed. To understand the current situation and characteristics of college students' learning motivation, so as to better improve college students' learning motivation.

2.3 Research tools

The "College Students' Learning Motivation Questionnaire" was compiled by Tian Lan and Pan Weigang in 2006. It is a self-assessment scale that includes four dimensions: knowledge pursuit, ability pursuit, reputation acquisition, and altruistic orientation, with a total of 34 items. A five-point scoring method is used. Elevated total and dimensional scores on the scale are positively correlated with enhanced learning motivation among college students, manifested in their pursuit of knowledge, competence, social recognition, and altruistic goals. The correlation coefficients between each sub-questionnaire and the total questionnaire are between 0.741 and 0.888, indicating that each sub-questionnaire reflects the content to be measured by the questionnaire well; the correlation coefficients between each sub-questionnaire are between 0.233 and 0.548, which are medium to low correlations, indicating that each factor has a certain degree of independence; the correlation coefficients between the 34 items and their respective sub-questionnaires are between 0.346 and 0.677. The scale has good reliability and validity [13].

2.4 Data processing

The statistical software SPSS23.0 was used to analyze the data.

3. Results of the study

3.1 Overall situation of college students' learning motivation

Table 1 Overall situation of college students' learning motivation

	n	Min	Max	M	SD
Knowledge pursuit	440	1.50	5.00	3.13	0.63
Ability pursuit	440	1.00	3.80	2.51	0.52
Reputation acquisition	440	1.33	3.83	2.50	0.46
Altruistic orientation	440	1.13	3.63	2.43	0.42
Learning motivation	440	1.90	3.62	2.65	0.28

From the data in Table 1, it can be seen that the "College Student Learning Motivation Questionnaire" uses a 5-point Likert scale, with a theoretical mean of 3. The average value for the dimension of college students' Knowledge pursuit is 3.13, which is higher than the theoretical mean of 3. The average values for learning motivation and its three dimensions (ability pursuit, reputation acquisition, and altruism orientation) are 2.65,2.51,2.50, and 2.43, respectively, all lower than the theoretical mean of 3.

3.2 Differences in learning motivation between college students in the control group (participating in the online and offline teaching mode program) and the experimental group (not participating in the online and offline teaching mode program)

Table 2 Comparison of differences in learning motivation between college students in the control group (participating in the online and offline teaching mode program) and the experimental group (not participating in the online and offline teaching mode program)

	Control group (n = 132) M±SD	Experimental group (n = 308) M±SD	t	P
Knowledge pursuit	2.97±0.55	3.20±0.64	-3.863*	0.000
Ability pursuit	2.48±0.54	2.53±0.52	-0.829	0.408
Reputation acquisition	2.52±0.46	2.50±0.47	0.363	0.717
Altruistic orientation	2.48±0.36	2.41±0.46	1.739	0.083
Learning motivation	2.61±0.25	2.66±0.29	-1.658	0.098

Note: * indicates $P < 0.05$. Same as below.

From the data in Table 2, it can be seen that there is a significant difference in knowledge pursuit between the control group (college students who did not participate in the online and offline teaching mode program) and the experimental group (college students who participated in the online and offline teaching mode program). The mean value of knowledge pursuit of the experimental group (college students who participated in the online and offline teaching mode program) was significantly higher than that of the control group (college students who did not participate in the online and offline teaching mode program).

3.3 Differences in learning motivation among college students participating in online and offline teaching mode based on demographic characteristics

3.3.1 Differences in gender in learning motivation among college students participating in online and offline teaching mode program

Table 3 Comparison of gender differences in learning motivation among college students participating in online and offline teaching mode programe

	Males (n = 58) M±SD	Females (n = 250) M±SD	t	P
Knowledge pursuit	3.12±0.69	3.22±0.63	-1.125	0.262
Ability pursuit	2.47±0.55	2.54±0.51	-0.922	0.357
Reputation acquisition	2.39±0.50	2.52±0.46	-1.969*	0.0499
Altruistic orientation	2.47±0.47	2.40±0.44	1.190	0.235
Learning motivation	2.61±0.31	2.67±0.28	-1.383	0.168

As can be seen from the data in Table 3, there are significant differences in reputation acquisition among college students of different genders in the experimental group participating in the online and offline teaching mode program. In the experimental group participating in the online and offline teaching mode program, the mean value of female college students in reputation acquisition is significantly higher than that of male college students.

3.3.2 Differences in learning motivation among college students participating in online and offline teaching mode across different family location

Table 4 Comparison of learning motivation among college students in online and offline teaching mode across different family locations

	Rural areas (n = 160) M±SD	Urban areas (n = 148) M±SD	t	P
Knowledge pursuit	3.12±0.62	3.29±0.66	-2.287*	0.023
Ability pursuit	2.54±0.47	2.51±0.56	0.427	0.670
Reputation acquisition	2.45±0.47	2.56±0.45	-2.088*	0.038
Altruistic orientation	2.43±0.45	2.39±0.45	0.851	0.395
Learning motivation	2.63±0.28	2.69±0.29	-1.600	0.111

From the data in Table 4, we can see that among the experimental groups participating in the online and offline teaching mode program, there are significant differences in the knowledge pursuit and the reputation acquisition among college students from different family location. Among the experimental groups participating in the online and offline teaching mode program, the mean values of college students from rural areas in the knowledge pursuit and the reputation acquisition are significantly lower than those from urban areas.

3.3.3 Differences in learning motivation among college students participating in online and offline teaching mode based on whether they are student leaders

Table 5 Comparison of learning motivation among college students participating in online and offline teaching mode based on whether they are student leaders

	Student leaders (n = 160) M±SD	Non-student leaders (n = 148) M±SD	t	P
Knowledge pursuit	3.21±0.61	3.19±0.68	0.294	0.769
Ability pursuit	2.61±0.52	2.43±0.50	3.032*	0.003
Reputation acquisition	2.51±0.46	2.49±0.48	0.368	0.713
Altruistic orientation	2.37±0.47	2.46±0.42	-1.861	0.064
Learning motivation	2.67±0.28	2.64±0.30	0.939	0.348

From the data in Table 5, it can be seen that in the experimental group participating in the online and offline teaching mode program, there are significant differences in ability pursuit between student-leader college students and non-student-leader college students. In the experimental group participating in the online and offline teaching mode program, the mean values of student-leader college students in ability pursuit are significantly higher than those of non-student-leader college students.

3.3.4 Differences in learning motivation among college students participating in online and offline teaching mode based on their individual financial situations

From the data in Table 6, it can be seen that there is a significant difference in altruistic orientation between poor and non-poor college students in the experimental group participating in the online and offline teaching mode program. In this experimental group, the mean value of altruistic orientation for poor college students is significantly higher than that of non-poor college students.

Table 6 Comparison of the differences in learning motivation of college students participating in online and offline teaching mode program based on different individual financial situations

	Poor students (n = 155) M±SD	Non-poor students (n = 153) M±SD	t	P
Knowledge pursuit	3.15±0.64	3.26±0.65	-1.475	0.141
Ability pursuit	2.50±0.53	2.55±0.50	-0.844	0.399
Reputation acquisition	2.46±0.44	2.54±0.49	-1.469	0.143
Altruistic orientation	2.46±0.43	2.36±0.47	2.052*	0.041
Learning motivation	2.64±0.30	2.68±0.27	-1.007	0.315

4. Discussion

4.1 Analysis and discussion of the overall situation of college students' learning motivation

The data in Table 1 shows that the average value of college students' Knowledge pursuit exceeds the theoretical average. The average values of their learning motivation and the three dimensions (ability pursuit, reputation acquisition, and altruism orientation) are all below the theoretical average. Among the learning motivations of college students, "knowledge pursuit" is relatively strong, while "ability pursuit," "reputation acquisition," and "altruism orientation" are lower. This may be due to the lack of diverse incentives and value guidance for college students within the education system, which, combined with cultural factors in society that promote utilitarian tendencies and reduce responsibility among college students[14-15]. This finding reminds us that universities should not only focus on "knowledge transmission" but also consider multiple dimensions such as motivation stimulation, psychological support, and value guidance to help students develop a more balanced and sustainable learning motivation system.

4.2 Analysis and discussion of differences in learning motivation between college students who did and did not participate in online and offline teaching mode

The data in Table 2 show that the experimental group (college students participating in the online and offline teaching mode program) is significantly higher than the control group (college students not participating in the online and offline teaching mode program) in the dimension of knowledge pursuit. This conclusion is similar to the research conclusion of Chinese scholar Jia Min et al. in 2023 [16]. The reason may be that the application of multimedia and interactive technology enhances the learning experience. Online teaching is usually accompanied by rich multimedia resources (such as videos, animations, etc.) and interactive platforms (such as discussion areas, online tests, etc.), which can present knowledge content more intuitively and vividly, making the learning process more attractive and participatory, thereby enhancing students' desire for knowledge. Due to the advantages of online and offline hybrid teaching mode in teaching content presentation, learning methods, teaching interaction, etc., it effectively improves students' learning initiative and learning experience, thereby enhancing their pursuit of knowledge [7, 17, 18, 19].

4.3 Analysis and discussion of differences in learning motivation among college students participating in online and offline teaching mode based on demographic characteristics

The data in Table 3 show that among the experimental group participating in online and offline teaching mode program, female college students have a significantly higher mean score in reputation

acquisition compared to male college students. The reason for this finding may be attributed to the development and progress of women's education in China, where girls are more aware of the importance of learning for personal development, thus exhibiting higher learning motivation[20].

The data in Table 4 show that among the experimental group participating in online and offline teaching mode program, college students from rural areas have significantly lower average levels of knowledge pursuit and reputation acquisition compared to those from urban areas. The possible reason for the difference in knowledge pursuit is related to family cultural capital. Studies have shown that college students from urban areas have richer family cultural capital than those from rural areas, and there is a significant positive correlation between family cultural capital and the intensity of learning motivation. College students from urban areas generally have more family cultural capital than those from rural areas[21-22]. Urban educational resources are superior to those in rural areas. Under the influence of high-quality educational resources, college students from urban areas are more likely to develop a higher interest in learning[23].

The data in Table 5 show that among the experimental group participating in the online and offline teaching mode program, In the experimental group participating in the online and offline teaching mode program, the mean values of student-leader college students in ability pursuit are significantly higher than those of non-student-leader college students. Student leaders, due to their frequent interactions with teachers and strong sense of responsibility, are typically expected to perform better in learning motivation[24].

The data in Table 6 show that among the experimental group participating in the online and offline teaching mode program, the altruistic orientation scores of poor college students were significantly higher than those of non-poor students. In China, poor college students receive support from scholarships, grants, and social donations, which may inspire their sense of social responsibility[25-26]. In the program involving blended online and offline teaching, poor college students are more likely to exhibit altruistic tendencies, contributing back to society and the community.

5. Conclusion

(1) The average value of college students' knowledge pursuit is higher than the theoretical average value. The average values of college students' learning motivation and three dimensions (ability pursuit, reputation acquisition and altruistic orientation) are all lower than the theoretical average values.

(2) The experimental group (college students participating in the online and offline teaching mode program) has significantly higher knowledge pursuit than the control group (college students not participating in the online and offline teaching mode program).

(3) In the experimental group participating in the online and offline teaching mode program: female college students had significantly higher mean scores in reputation acquisition than male students; college students whose families are located in rural areas had significantly lower mean scores in knowledge pursuit and reputation acquisition compared to those from urban areas; non-student leader college students had significantly higher scores in knowledge pursuit and reputation acquisition than student leader college students; poor college students had significantly higher scores in altruistic orientation than their non-poor college students.

6. Countermeasures and suggestions

6.1 Pay attention to the systematic cultivation of learning motivation

Although college students perform well in knowledge pursuit, their motivation in ability pursuit, reputation acquisition and altruistic orientation is relatively insufficient, indicating that the current

educational environment still needs to be strengthened in supporting students' multi-dimensional growth. Therefore, educators should pay more attention to the diversified construction of learning motivation, and guide students to transform from single interest drive to comprehensive ability and social responsibility drive through comprehensive means such as course content, teaching methods, and evaluation mechanisms.

6.2 Optimize teaching methods and stimulate students' initiative

The online and offline integrated teaching mode shows certain advantages in improving students' knowledge pursuit, indicating that teaching form has an important influence on the stimulation of motivation. We should continue to promote the innovation and integration of teaching modes, enhance the interactivity of classrooms, the challenge of tasks and the autonomy of learning, and build a learning environment that helps students to actively participate.

6.3 Pay attention to the differences between student groups

The study revealed the role of gender, family location, whether to serve as a student leader and personal financial status in the formation of learning motivation. Educators should strengthen their understanding and response to individual differences among students, reflect inclusiveness in teaching design and resource allocation, and provide as many diverse support strategies as possible so that students from different backgrounds can obtain an appropriate growth path.

6.4 Create a supportive and empowering educational environment

Motivation not only comes from the intrinsic needs of individuals, but is also influenced by social identity and role cognition. It is recommended to create a positive, cooperative, and mutual learning atmosphere on campus, encourage students to construct self-value in helping others, participating and expressing, and pay special attention to the unique challenges and potential of groups such as students in rural areas, non-student leaders, and poor students in motivation construction.

6.5 Promote the improvement of education evaluation and incentive mechanisms

The current students' performance in learning motivation is not strong, which may be related to the fact that the education evaluation system is too result-oriented and lacks positive incentives. It is recommended to build a more diversified, process-oriented and developmental evaluation mechanism to stimulate students' motivation experience in the process of exploration, cooperation and innovation, and emphasize growth rather than just results.

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