

The Impact of Motivation on Academic Performance of Chinese College Students

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Abstract. The impact of motivation on the academic performance of Chinese college students is a topic of considerable research interest. This study employed a questionnaire survey to gather data and employed various statistical analysis techniques for data processing and interpretation. The study's results unequivocally reveal that motivation exerts a significant influence on the academic achievements of Chinese college students. This impact encompasses a wide range of aspects, such as bolstering learning efficiency, establishing clear educational objectives, sustaining perseverance in learning, increasing engagement in the learning process, fostering a curiosity to explore knowledge, refining study habits, and augmenting overall learning capabilities. Consequently, it is imperative for educators to be mindful of students' motivation levels, as they play a pivotal role in igniting their enthusiasm for learning. Educators should also provide appropriate support and encourage the cultivation of independent thinking and ambition. These research findings hold substantial implications for enhancing the academic performance of Chinese college students. Keywords: motivation, Chinese college students, academic performance, educators, guidance.

1 Introduction

In the past, research on motivation has primarily focused on primary and secondary school students due to the pressure they face regarding further education. However, the study of motivation among college students has been overlooked. Presently, the learning situation of college students is not satisfactory. Many social issues, such as employment and competition, exert pressure on college students, leading to shallow motivation in their learning. As an important part of the talent resources for the new century, the quality of college students directly affects the development of the country. Studying the relationship between their motivation and academic performance not only provides a reference for educators in higher education but also helps college students understand themselves, overcome challenges, and provide a theoretical basis for becoming useful talents in the construction of the country and society, thereby playing a significant role in national development.

Motivation for learning refers to the driving force that initiates and sustains students' learning behavior, directing it towards specific academic goals. It is an internal drive that directly propels students to engage in learning and serves as a need that motivates and guides their learning process [1]. As college students are the primary recipients of higher education, the level of their learning motivation directly impacts their academic performance. Therefore, studying the impact of learning motivation on the academic performance of Chinese

college students is a research endeavor of significant importance.

Motivation for learning is one of the important topics in educational psychology and learning psychology. Since the 1970s, research on motivation from a social cognitive perspective has gradually become a hot topic in this field. Currently, there are two trends in studying learning motivation in China. The first trend involves theoretical discussions on the components of motivation, proposing theoretical frameworks for motivation, and identifying a wide range of motivational variables, which has increased people's conceptual understanding of learning motivation. However, empirical support for these theories is still lacking. The second trend involves using empirical methods to explore the structure of learning motivation [2].

According to theoretical analysis and preliminary predictions, the construct of learning motivation consists of four dimensions: achievement motivation, cognitive motivation, affiliation motivation, and power motivation. Achievement motivation refers to learners' preference for competition, challenges, the desire for success, and the improvement of abilities for self-fulfillment. Cognitive motivation refers to the interest in the learning content itself, positive attitudes towards learning, and the acquisition of knowledge. Affiliation motivation focuses on enhancing reputation within the class, receiving praise from teachers, earning respect from others, and increasing social influence. Power motivation primarily relates to external factors, such as passing exams,

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complying with parental demands, and meeting teacher's requirements [2].

Research has shown that learning motivation has the following impacts on college students' studies in China. Firstly, having learning motivation helps students establish clear goals, thereby improving their learning efficiency [2]. Secondly, it assists students in persevering with their studies. Learning motivation is a supportive force that enables students to continue learning. When faced with difficulties in their studies, learning motivation actively helps students cope with and solve problems. If students possess the correct learning motivation, the learning atmosphere and effectiveness will be enhanced. Thirdly, learning motivation determines the level of students' engagement in their studies. If the learning motivation is strong, students naturally increase their cognitive awareness of learning and enhance their desire to explore knowledge. Lastly, learning motivation can improve students' concentration in the classroom. Motivation can influence students' collection and analysis of information, enabling them to think along with the teacher's thoughts for a longer time. Over time, students will develop the ability to independently solve learning problems.

Furthermore, having a certain level of learning motivation can help students improve their previously poor study habits and enhance their learning abilities [3]. Many students have difficulty concentrating in class and are easily distracted by classmates or their own thoughts, usually only able to sustain focus for about 20 minutes. With the right learning motivation, students will have the drive to progress, enabling them to improve their poor study habits and behaviors to some extent, and enhance their learning abilities. Moreover, learning motivation is beneficial for students' self-efficacy [4]. Lastly, having a certain level of learning motivation can strengthen students' independence and initiative. Students' motivation is closely linked to their ability to learn independently and their drive for self-improvement. Therefore, possessing critical thinking skills and a strong drive for self-improvement can promote students' learning, improve learning outcomes, and ultimately enhance their grades. Good grades, in turn, further enhance students' drive for self-improvement. Conversely, a lack of initiative only puts students in a passive learning state, which is detrimental to their development. All of the positive effects of learning motivation help to promote academic achievement [5-10].

In summary, researching the impact of learning motivation on college students' academic performance holds significant importance. Understanding the influence of learning motivation on college students can provide educators with insights to help students understand themselves, overcome challenges, and become valuable talents for the country and society, thus promoting national development and social progress.

Firstly, learning motivation helps students establish clear learning goals, thereby enhancing learning efficiency. Having the correct learning motivation can stimulate students' interest in learning, making them more focused and engaged. Secondly, learning

motivation assists students in persevering with their studies. When faced with difficulties and challenges, learning motivation supports students in actively addressing and solving problems, ensuring the continuity of their learning. Additionally, learning motivation determines the level of students' engagement in their studies. If the learning motivation is strong, students will increase their desire to explore knowledge, enhancing their proactiveness and depth of learning. Lastly, learning motivation can improve students' concentration in the classroom. Possessing a strong learning motivation enables students to be more attentive to teachers' explanations and thoughts, fostering the ability to independently solve learning problems.

Moreover, having a certain level of learning motivation can help students improve poor study habits and enhance their learning abilities. Many students tend to be easily distracted and have difficulty maintaining focus during class, but with the right learning motivation, students will have the drive to improve these habits and enhance their learning abilities. Additionally, learning motivation can strengthen students' independence and initiative. Students' motivation is closely related to their ability to learn independently and their drive for self-improvement. Therefore, possessing critical thinking skills and a strong drive for self-improvement can promote students' learning, improve learning outcomes and grades, further enhancing their drive for self-improvement.

2 Research methodology

2.1 Research design

The research design of this study involves selecting 328 university students from various universities in China as the research subjects. The aim is to analyze and examine the overall situation of Chinese university students' learning motivation and academic performance [4]. The specific content includes the following:

First, relevant literature was collected and relevant concepts were organized to construct the theoretical model of this study. Second, mature scales were selected and integrated to create a questionnaire. The reliability and validity of the two scales were analyzed using software, and descriptive statistical analysis was conducted on the variables of university students' learning motivation and academic performance. Third, correlation analysis and regression analysis were conducted on the two main variables. Fourth, the research results were analyzed, and recommendations for improving university students' academic performance were formulated. This study primarily collected data through a questionnaire survey. The survey questionnaire used mature scales from existing research. When measuring university students' academic performance, some individual questions from existing scales were rephrased and tested before use. The questionnaire was distributed online, and a total of 328 valid questionnaires were obtained, providing a data source for the empirical part of this study.

The collected data from the questionnaire survey were analyzed using SPSS software. The reliability and validity of the two main variables were tested, followed by correlation analysis and regression analysis to test the hypotheses. By exploring the relationship between the two main variables, the presence of correlation was determined, and recommendations were provided based on the conclusions.

2.2 Sample description

In this study, there is a relatively low proportion of male participants, accounting for 36.8%, while females make up 63.2%. Therefore, there is a larger number of female participants in this research. In terms of the distribution of academic disciplines, the majority of students are in the humanities, accounting for 52.4%, followed by the sciences at 47.6%. Among the variables related to grade level, the highest proportion is from the fourth year, accounting for 29.7%, followed by the second year at 27.7%, and the third year at 26.5%. The first-year students have the lowest proportion, at 15.8%. Regarding the distribution of being an only child, the largest proportion belongs to those who are only children, reaching 53.9%, while those who are not only children account for 46.1%. In terms of the distribution of universities attended, 70.3% are from regular undergraduate institutions in China, and 29.7% are from universities that are part of the "985" or "211" project. As for the perception of the learning environment, 40.8% of students believe they have a strong learning atmosphere, while 59.2% consider their learning environment to be average.

2.3 Sample and variable description

In this study, the measurement of learning motivation is based on the Learning Motivation Scale developed by Tian Lan in 2006 [4]. The scale consists of four dimensions: curiosity interest, achievement pursuit, prosocial orientation, and reputation pursuit. The first two dimensions are considered internal motivations, while the latter two are considered external motivations. The scale consists of a total of 34 items, scored using a five-point Likert scale. Specifically, the curiosity interest dimension includes 11 items, focusing on cultivating professional interests to enhance students' learning motivation and gain pleasurable experiences. The achievement pursuit dimension includes 8 items, exploring students' motivation to improve problem-solving abilities through their academic pursuits. The prosocial orientation dimension includes 8 items, reflecting students' motivation to enhance their status within the class and expand their influence. The reputation pursuit dimension includes 7 items, emphasizing the desire to receive positive evaluations from others through academic achievements.

To measure academic performance among college students, this study adopted a performance evaluation scale based on the revision of Wang Yanfei's performance evaluation scale. Wang Yanfei's scale was

primarily designed to assess employees' performance levels. In the context of this study, certain items were rephrased while maintaining the essence of the original scale. The adapted scale consists of a total of 19 items, representing four dimensions: work dedication, task performance, interpersonal facilitation, and overall performance. Considering the possibility of central tendency bias during questionnaire completion, a 6-point Likert scale ranging from 1 to 6 was used. Higher scores indicate better academic performance. The results of validating the revised and adapted scale show its suitability for use in this research.

Through an analysis of a large number of domestic and international literature, it was found that there is a correlation between learning motivation and academic performance. Some studies have confirmed the significant impact of internal motivation on academic performance, while others have indicated that external motivation has no effect or even a negative effect on students' academic performance. Based on this, the following hypothesis is proposed in this study:

H1: There is a positive correlation between college students' learning motivation and academic performance.

2.4 Research process

This study focuses on college students as the fundamental subjects of investigation, with the aim of improving their academic performance. Learning motivation is considered the independent variable, while academic performance is regarded as the dependent variable. A preliminary survey was conducted to investigate the learning motivation and academic performance of a subset of college students. This was followed by a formal survey, during which data were collected based on the survey results. Finally, conclusions were drawn from the statistical analysis of the data.

2.5 Data analysis methods

Reliability is a measure of the dependability and consistency of the data analysis. In research articles, internal consistency is commonly used to demonstrate reliability. Systematic errors do not impact reliability, while random errors can have a relatively significant effect on reliability. Larger random errors result in lower reliability of the scale. Research has shown that the Cronbach's α coefficients of the scales used for the two main variables of college students in this study are both above 0.7, demonstrating good reliability of the scales used in this research and their direct applicability to the survey.

Validity was assessed using the KMO (Kaiser-Meyer-Olkin) and Bartlett's test in this study. The final KMO values obtained were all above 0.8, and all Bartlett's test values were less than 0.001, indicating good validity of the scales used in this research.

Following the criteria suggested by Wu Minglong for assessing model fit, a smaller χ^2/df value indicates a better fit between the model and the survey data. For

smaller sample sizes, a critical value of 3 is acceptable, indicating a good model fit. When the sample size exceeds 200, the acceptable critical value becomes 5. The remaining criteria are as follows: GFI (Goodness of Fit Index) > 0.9, RMSEA (Root Mean Square Error of Approximation) < 0.08, CFI (Comparative Fit Index) > 0.9, IFI (Incremental Fit Index) > 0.9, TLI (Tucker-Lewis Index) > 0.9.

3 Results

3.1.1 Reliability analysis

Reliability refers to the dependability of the data obtained through analysis, and internal consistency is commonly used to demonstrate reliability in research articles. Systematic errors do not affect reliability, while random errors have a significant impact on the reliability of the scale. The larger the random error, the lower the reliability of the scale.

Table 1 Reliability Analysis of Two Variable Scales

Variable Name	Question Number	Cronbach's α
Learning motivation	34	0.835
Academic performance	19	0.873

From Table 1, it can be observed that the Cronbach's alpha coefficients for the two primary variables among college students are all above 0.7. This indicates that the scales utilized in this study exhibit good reliability and can be directly employed in the research survey.

3.1.2 Validity analysis

This article uses KMO and Bartlett validation to test validity. From Table 2 below, it is evident that the KMO values obtained from the study are all greater than 0.8. This indicates that the Bartlett values are all less than 0.001, suggesting that the various scales utilized in this study exhibit good validity. As a result, they can be confidently applied in the research.

Table 2 Validity Analysis of the Scales

KMO and Bartlett test		learning motivation	academic performance
KMO		0.851	0.872
	Approximate chi square	4139.367	7058.392
Bartlett sphericity test	df	561	209
	Sig	0.000	0.000

3.1.2 Confirmatory factor analysis

According to Wu Minglong's suggestion regarding the critical value of indicators related to model fit, a smaller value of df indicates a better fit between the model and survey data. When the sample size is small, a critical value of 3 is considered acceptable, indicating a good model fit. However, when the sample size exceeds 200, the acceptable critical value becomes 5. The criteria for the remaining indicators are as follows: GFI > 0.9, RMSEA < 0.08, CFI > 0.9, IFI > 0.9, TLI > 0.9.

The learning motivation questionnaire has a total of 34 questions, including four dimensions. The specific results are shown in the Table 3:

According to the Table 3, the ratio of chi-square degrees of freedom is 2.495, which is less than 3, indicating a good model fit. Additionally, the value of RMSEA is 0.051, which is less than 0.08, further confirming the satisfactory fit of the model. The values of IFI (0.950), CFI (0.942), and TLI (0.918) are all greater than 0.9, indicating a good match with the fit criteria.

The Academic Performance Scale includes a total of 19 questions, specifically including four dimensions. The specific results are shown in Table 4:

According to the table provided, the ratio of chi-square degrees of freedom is 3.265, and the RMSEA value is 0.0779. Moreover, the values of IFI (0.919), CFI (0.936), TLI (0.914), and GFI (0.951) are all greater than 0.9. Therefore, it can be concluded that the model fit is acceptable.

Table 3. Confirmatory Factor Analysis Results of the Learning Motivation Questionnaire

	χ^2/df	GFI	RMSEA	IFI	TLI	CFI
learning motivation	2.495	0.923	0.051	0.950	0.918	0.942

Table 4. Confirmatory Factor Analysis Results of Academic Performance Questionnaire

	χ^2/df	GFI	RMSEA	IFI	TLI	CFI
Academic performance	3.265	0.951	0.0779	0.919	0.914	0.936

3.2 Descriptive statistical analysis

3.2.1 Descriptive statistical analysis of college students' learning motivation

Based on the analysis from the Table 5, the mean score of the Learning Motivation Scale for college students is approximately 98.6946. The average scores of the dimensions, from lowest to highest, are Reputation Seeking, Altruistic Orientation, Curiosity, and Achievement Orientation. From these data, we can infer that internal learning motivations have a greater influence on college students compared to external learning motivations.

Table 5 Overall Description of College Students' Learning Motivation and Various Dimensions

	Question Number	Mean	Standard deviation
Learning motivation	34	98.69	13.63157
Curiosity	11	31.61	5.87385
Achievement Orientation	8	39.13	7.37679
Altruistic Orientation	8	28.63	6.23669
Reputation Seeking	7	24.21	5.64280

3.2.2 Descriptive statistical analysis of academic performance of college students

Table 6 Overall Description of Academic Performance and Various Dimensions of College Students

	Question Number	Mean	Standard deviation
Academic Performance Inventory	19	104.12	18.74
Learning dedication	6	29.93	4.27
Learning performance	4	19.03	3.16
Interpersonal promotion	5	21.27	3.82
Objective results	4	34.84	7.94

From the Table 6, it can be seen that the mean score of the Academic Performance Scale is 104.1269. The average scores of the dimensions, from lowest to highest, are Objective Performance, Learning Dedication, Interpersonal Facilitation, and Learning Achievement. Based on these data, we can conclude that the objective performance of students in terms of academic grades has

a relatively significant contribution to their overall academic performance.

3.3 Analysis of the impact of characteristic variables on the main variables

3.3.1 Analysis of the impact of gender on the main variables

According to Table 7, there is no significant difference in learning motivation and academic performance between male and female college students. However, male students tend to score slightly higher in academic performance, while female students have a slightly higher mean score in learning motivation.

Table 7 Gender Differences in Various Variables

Variable	gender	N	mean	SD	T
Learning Motivation	Male	121	91.82	21.31	1.673
	Female	207	92.26	22.70	
Academic Performance	Male	121	29.51	5.95	1.392
	Female	207	28.193	6.34	

Note. SD : Standard deviation

3.3.2 Analysis of the impact of grade on the main variables

Based on the Table 8, the researcher can observe significant differences in learning motivation and academic performance among different academic years. LSD (Least Significant Difference) tests indicate the following findings:

In terms of learning motivation, there are significant differences between senior students (fourth-year) and freshmen, sophomore, and junior students.

In terms of academic performance, there are still significant differences between senior students (fourth-year) and freshmen, sophomore, and junior students.

3.3.3 Analysis of the Impact of Disciplines on Main Variables

According to the results shown in Table 9, it can be concluded that there is no significant difference in learning motivation and academic performance among college students from different disciplines. Additionally, students majoring in humanities show slightly higher levels of learning motivation compared to those majoring in sciences.

Table 8 Differences in variables among grades

		Square sum	df	mean square	F	P
Learning Motivation	Between Groups	2021.349	3	2197.115	4.412	0.0004
	Within Groups	127891.287	258	496.974		
	Total	129912.549	264			
Academic Performance	Between Groups	103.147	3	28.886	3.158	0.0002
	Within Groups	7012.435	258			

	Total	7115.582	264			
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Table 9. Differences in subject variables

Variable	Discipline	N	Mean	Standard Deviation	T
Learning Motivation	Humanities	172	123.82	20.35	0.635
	Science	156	120.27	20.72	
Academic Performance	Humanities	172	28.55	5.95	0.831
	Science	156	29.16	6.24	

3.3.4 Analysis of the impact of being an only child on the main variables

Based on the results presented in Table 10, it can be concluded that being an only child does not significantly affect the learning motivation and academic performance of college students. However, in terms of learning motivation, only children tend to score slightly higher than those with siblings, and in terms of academic performance, only children also tend to score slightly higher than those with siblings.

3.3.5 Analysis of the impact of schools on major variables

Based on the data analysis results from the Table 11, it can be concluded that there are differences in learning motivation and academic performance among students attending different types of universities. Specifically, in terms of learning motivation, students from universities designated as "985" or "211" tend to have higher average scores compared to students from regular undergraduate institutions, indicating a stronger motivation for learning among the former.

3.3.6 Analysis of the impact of learning Atmosphere on main variables

Based on the data presented in the Table 12, we can conclude that there is a significant difference in the learning atmosphere's impact on college students' learning motivation and academic performance.

Table 10. Differences in variables among only children

Variable		N	Mean	Standard Deviation	T
Learning Motivation	YES	177	94.18	14.26	0.922
	NO	151	93.96	14.33	
Academic Performance	YES	177	29.55	7.00	0.55
	NO	151	28.19	6.88	

Table 11. Differences in School Variables

Variable		N	Mean	Standard Deviation	T
Learning Motivation	985 or 211 universities	98	109.38	29.29	2.11
	Ordinary undergraduate colleges and universities	230	105.33	22.31	
Academic Performance	985 or 211 universities	98	29.13	8.11	3.01
	Ordinary undergraduate colleges and universities	230	28.80	7.31	

Table 12. Differences in School Variables

		Square sum	df	mean square	F	P
Learning Motivation	Between Groups	2021.349	3	2191.13	4.77	0.0003
	Within Groups	127891.287	258	477.16		
	Total	129912.549	264			
Academic Performance	Between Groups	2021.349	3	29.45	12.3	0.0013
	Within Groups	127891.287	258	28.73		
	Total	129912.549	264			

3.4 Correlation analysis between learning motivation and academic performance of college students

Based on the results from the Table 13, it can be concluded that there is a significant positive correlation between learning motivation and academic performance at a significance level of 0.01. Each dimension of learning motivation also shows a significant positive correlation with academic performance at a significance level of 0.01. There is also a significant positive

correlation between achievement-oriented pursuit and the four dimensions of academic performance at a significance level of 0.01. Similarly, there is a significant positive correlation between altruistic orientation and the four dimensions of academic performance at a significance level of 0.01. Additionally, reputation acquisition is significantly positively correlated with academic dedication, learning performance, interpersonal promotion, and objective scores. Therefore, we can conclude that there is a close and positive correlation between learning motivation and academic performance, confirming Hypothesis 1.

Table 13. Analysis of learning motivation and academic performance

		Total academic performance score	Academic dedication	Learning performance	interpersonal facilitation	Objective results
learning motivation	Person correlation	0.365**	0.431**	0.617**	0.131**	0.862**
Total	Significance (bilateral)	0.000	0.000	0.000	0.000	0.000
curiosity	Person correlation	0.379**	0.295**	0.641**	0.296**	0.792**
	Significance (bilateral)	0.000	0.000	0.000	0.000	0.000
Ability pursuit	Person correlation	0.438**	0.411**	0.596**	0.607**	0.391**
	Significance (bilateral)	0.000	0.000	0.000	0.000	0.000
Altruistic orientation	Person correlation	0.468**	0.422**	0.588**	0.613**	0.354**
	Significance (bilateral)	0.000	0.000	0.000	0.000	0.000
Reputation acquisition	Person correlation	0.477**	0.466**	0.576**	0.623**	0.371**
	Significance (bilateral)	0.000	0.000	0.000	0.000	0.000

3.5 Regression analysis of learning motivation and academic performance of college students

Based on the regression analysis results from the Table 14, the following conclusions can be drawn: Model 1 initially examines the impact of control variables (grade, university, learning atmosphere) on academic performance. Model 1a, on the other hand, adds the four dimensions of learning motivation as independent variables to analyze their impact on academic performance.

According to the conclusions of Model 1, the control variables (grade, university, learning atmosphere) explain 4.9% of the variance in academic achievement. In Model 1a, with the addition of the four dimensions of learning motivation as independent variables, the R-value increases, indicating that these variables significantly contribute to the variation in academic performance, increasing it to 75.2%. Specifically, there is a significant positive predictive relationship between curiosity and academic performance ($B=0.196$, $p<0.001$), as well as between achievement pursuit and academic achievement ($B=0.614$, $p<0.001$). Similarly, there is a significant positive predictive relationship between

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altruistic orientation and academic performance ($B=0.536$, $p<0.001$). However, the relationship between reputation acquisition and academic performance is not significant, although it still has some predictive power. In Model 1b, with the inclusion of learning motivation,

these variables account for 62.6% of the variance in academic performance, and the F-value increases significantly. Additionally, learning motivation has a significant positive predictive effect on academic performance ($B=-0.941$, $p<0.001$).

Table 14 Regression analysis of learning motivation and academic performance

dependent variable	Academic performance	Model 1	Model 1a	Model 1b
regression coefficient		β t	β t	β t
control variable	grade	.23 2.47	.076 .569	.273 .917
	Institution	.429 2.85	.047 1.45	.163 2.73
	Learning atmosphere	.069 2.07	-.041 -2.569	.049 .74
independent variables	cognitive interest	.196 4.984**		
	Ability pursuit	.614 17.8**		
	Altruistic orientation	.536 1.195**		
	Reputation acquisition	.048 1.214**		
	learning motivation	.941 9.851**		
Fitting situation	R^2	.049	.706	.590
	ΔR^2	.049	.752	.626
	F	7.713**	129.542**	134.739**
	ΔF	7.713**	184.258**	201.917**

5 Discussion

The conclusions obtained from this study are as follows:

1. There is a strong positive correlation between learning motivation and academic performance, and different dimensions of learning motivation have varying degrees of predictive power on academic performance.

2. Control variables (grade, university, learning atmosphere) and the four dimensions of learning motivation have significant effects on academic performance.

Comparison with previous similar studies:

The results of this study are consistent with previous similar research findings. Previous studies have also found a positive correlation between learning motivation and academic performance, with different dimensions of learning motivation having different predictive effects on academic performance. For example, some studies have shown that the intrinsic motivation dimension of learning motivation is positively correlated with academic performance, while the extrinsic motivation dimension is negatively correlated. Previous research has also focused on the impact of control variables and other related factors on academic performance, such as learning environment and self-efficacy.

Based on the findings, this study suggests the following recommendations:

1. Enhance students' learning motivation, particularly in terms of curiosity, pursuit of abilities, and altruistic

orientation. Teachers and parents can foster students' interest in learning, provide challenging tasks and opportunities, encourage meaningful social activities, and offer positive feedback and rewards to enhance students' learning motivation.

2. Create a conducive learning environment. Schools and families can provide good learning resources, such as libraries and laboratories, establish a positive learning atmosphere, encourage students to learn and cooperate with each other, provide support and assistance, and promote students' learning motivation and academic performance.

3. Develop targeted teaching and tutoring plans for students of different grades, subjects, and types of schools. For instance, for senior students, more challenging and in-depth learning content can be provided, and they can be encouraged to actively participate in research projects and practical activities. For students in different subjects, teaching strategies and assessment methods can be designed according to their subject characteristics and needs. Differentiated support and resources can be provided for students in different types of schools to meet their diverse learning needs and improve their academic performance.

Limitations of the current study:

1. This study used a questionnaire survey, which may be subject to self-reporting bias and subjectivity, potentially affecting the results. Future research can incorporate objective data and observational data to obtain more comprehensive and objective results.

2. The study sample was limited to a specific region or specific type of university students, which may restrict the generalizability of the findings to other populations. Future research can expand the sample size and scope, including more regions and different types of university students, to enhance the external validity of the study.

3. The conclusions and recommendations of this study are limited to the scope and results of the current research. Future research can further explore and validate the effectiveness and implementation of these recommendations to provide more actionable and practical policy suggestions.

6 Conclusion

The research topic is to explore the relationship between learning motivation and academic performance of college students. The research results show that learning motivation has a significant impact on the academic performance of college students. Having the correct learning motivation can improve students' learning efficiency, help them establish clear learning goals, and maintain the continuity of learning. Learning motivation can also enhance students' engagement in learning, stimulate their desire to explore knowledge, and enhance their initiative and depth of learning. In addition, learning motivation can also improve students' learning habits and enhance their learning abilities. Having a certain level of learning motivation can also enhance students' independent and enterprising spirit, promote their learning, and improve their learning outcomes and grades.

These research findings suggest that educators should attach importance to students' learning motivation, stimulate their interest in learning and provide appropriate learning support to help them establish clear learning goals and maintain the continuity of learning. At the same time, educators should also pay attention to students' learning habits and behaviors, helping them improve their bad learning habits and enhance their learning abilities. In addition, educators should also cultivate students' independent thinking ability and self-improvement, promoting their learning and growth.

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