Article

Investigating the Relationship Between Learning Motivation and Academic Performance:
Data Analysis Based on College Students

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Abstract: Taking college students as the research object, the relationship between learning motivation and academic performance was investigated by questionnaire. The results showed that there was a significant positive correlation between learning motivation and academic performance, and self-efficacy, active learning behavior and intrinsic motivation played an important role in positive academic performance. The survey also found that the current college students' learning motivation has a clear utilitarian trend, lack of intrinsic motivation, poor stability, and obvious group differences. The main reasons for this phenomenon include: first, the employment pressure and utilitarian tendency in the social environment; The second is the defects of curriculum system and evaluation system in school education; Third, the students themselves have no clear goal orientation, and their self-control is weak. Based on this, this paper puts forward three strategies for reference from the level of teaching reform, resources and students.

Keywords: Learning motivation; Academic performance; Questionnaire survey; Problems and countermeasures; College students

1. Introduction

At present, how to improve the learning effect and quality of college students has become an important issue. In these processes, learning motivation is a key factor. At present, there are two problems in college students: on the one hand, some college students have the idea of "lying flat", and they are very negative in learning and have no goals; On the other hand, some college students have formed a serious "Involution" thought, paying too much attention to achievements and pursuing too much recognition from others. In fact, this reflects the possible problems of college students' learning motivation, and at the same time, it also warns us that how students' learning motivation affects their academic performance.

In order to further understand the current situation of college students' academic learning motivation and explore the impact of college students' learning motivation on academic performance, we carried out an empirical analysis on the impact of college students' learning motivation on academic performance in the form of questionnaire survey. It is hoped that this study can provide some reference for the reform of education and teaching in colleges and universities and the growth of students.

2. Research background and survey design

2.1. Research background

2.1.1 Respondents and samples

This paper is based on research by college students. A total of 252 valid questionnaires were issued. The students surveyed are representative, covering all types of college students. In terms of gender, girls accounted for 61.11% of the total sample, while boys accounted for 38.89%. From the perspective of grade level, except for the freshman year, the proportion of other grades is above 20%, and the proportion of graduate students is 13.89%. In terms of majors, engineering, science, agriculture, medicine, literature, law, economics and management have the largest number, accounting for more than 90% of the total sample size, while arts and sports and other majors are relatively small (see Figure1). In addition, nearly half of the college students surveyed in this survey are above average.
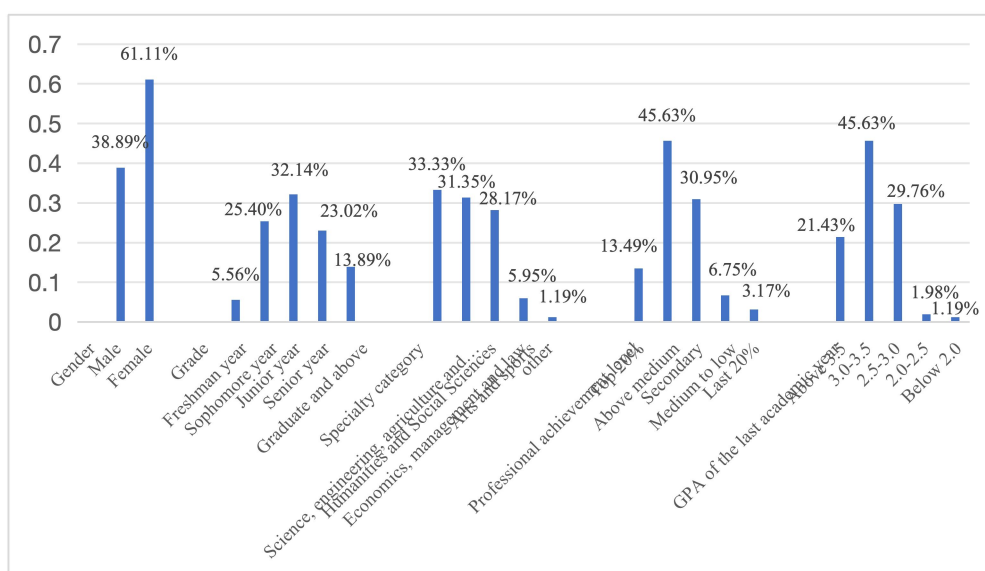

Figure 1. Detailed data chart of survey sample

2.1.2. Survey tools and methods

We used the "Learning Motivation Scale", a research tool, which mainly includes four dimensions: intrinsic motivation, extrinsic motivation, learning self-efficacy and learning behavior tendency, and then measured it based on the Likert five point scale(Koo & Yang, 2025), specifically: 1 means "completely inconsistent", 2 means "relatively inconsistent", 3 means "uncertain", 4 means "relatively consistent", and 5 means "fully consistent". In addition, we also used the GPA of the last year as a measure of academic

performance. As for the way of survey, we mainly choose to conduct anonymous surveys on the online questionnaire platform.

The survey found that the relationship between learning motivation and academic performance and the existing problems:

a. There is a significant positive correlation between learning motivation and academic performance

Through analysis and investigation, it is found that the overall learning motivation of college students is above the average level, the average of each dimension of the scale is between 3.85 and 3.92, and there is a positive correlation between learning motivation and academic performance, that is, the higher the level of motivation, the better the students' academic performance (Waluyohadi, 2019; Zhou & Ahmad, 2025).

From the specific results, among the different dimensions of learning motivation, the correlation between self-efficacy and academic performance is the highest, that is, the stronger the self-efficacy, the better the academic performance (Makpal et al., 2024). Learning self-efficacy is an individual's self-confidence and trust in their learning ability. When a person has a high sense of learning self-efficacy, he will persist even in the face of challenges and is willing to study more deeply. On the contrary, when a person's sense of learning self-efficacy is low, he cannot maintain strong resilience in the face of learning difficulties, and it is easy to give up. Although intrinsic motivation and extrinsic motivation can bring initial motivation or direction to learning, students are still unable to maintain effective learning behavior to achieve good academic performance due to lack of confidence in their ability, which also shows that self-efficacy is one of the important factors affecting students' academic performance (Portento et al., 2022).

In addition, there is a positive relationship between the dimension of learning behavior tendency and academic performance. The specific learning behavior tendency of the surveyed group in terms of active planning of learning behavior and active expansion of extracurricular learning once again proves that students' good learning habits and serious and strategic participation in learning can effectively improve their academic performance.

It is worth noting that there is little difference between the scores of college students' intrinsic motivation and extrinsic motivation in the scale, indicating that college students' motivation is mainly formed under the joint action of their own intrinsic learning interest and the goals set by the outside world. However, after further analysis of the data, it can be concluded that intrinsic motivation and extrinsic motivation have different effects on students' learning behavior and learning results. Intrinsic motivation can promote college students' long-term and in-depth participation in learning activities and improve their learning ability. For college students, extrinsic motivation can induce students' learning behavior in a short time, but it lacks persistence and stability (Zhou & Ahmad, 2025).

According to the survey data, this survey generally proves that there is a positive correlation between learning motivation and academic performance; Analyzing the dimensions of motivation, we can see that self-efficacy, active learning behavior and intrinsic motivation in learning motivation can promote students to obtain better aca-demic performance.

b. Prominent learning motivation problems-Learning motivation shows a clear utilitarian tendency, and external motivation is dominant

The survey shows that college students' learning motivation generally shows that they attach great importance to the realistic return and practical utility of learning, rather than pure knowledge pursuit or interest preference. More than half of students' regard "the pressure of future employment or further education" as the main factor affecting their learning motivation (see Figure 2). In terms of specific performance, the main purpose of most students' honest learning is "to find a good job", "to avoid failing or disappointing their parents" or "to obtain scholarships, honors or recognition from others"(see Figure 3). Therefore, at present, the external return has become the main driving force for most college students to participate in learning activities.
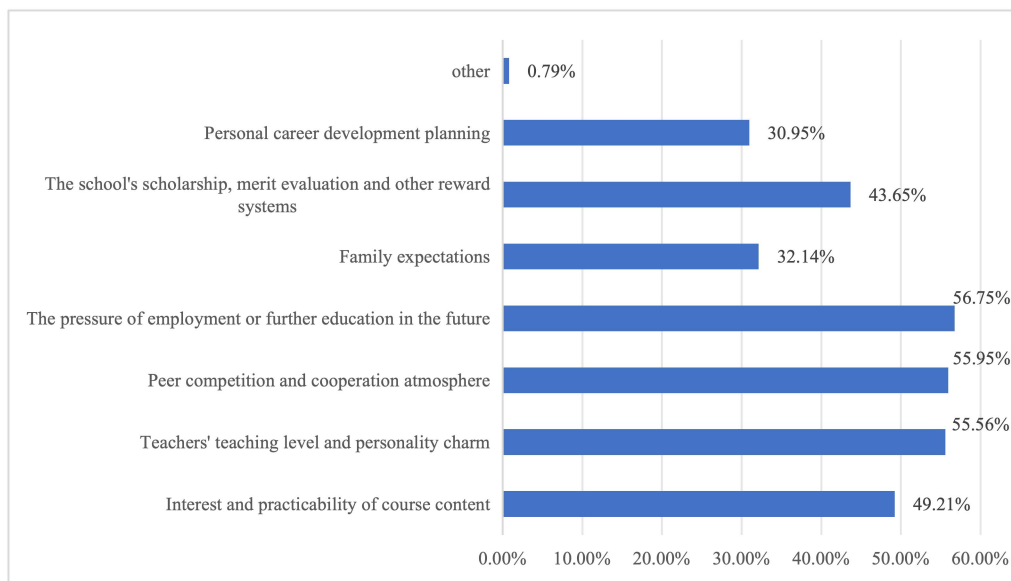
Figure 2. Bar chart of survey data on Influencing Factors of Learning Motivation
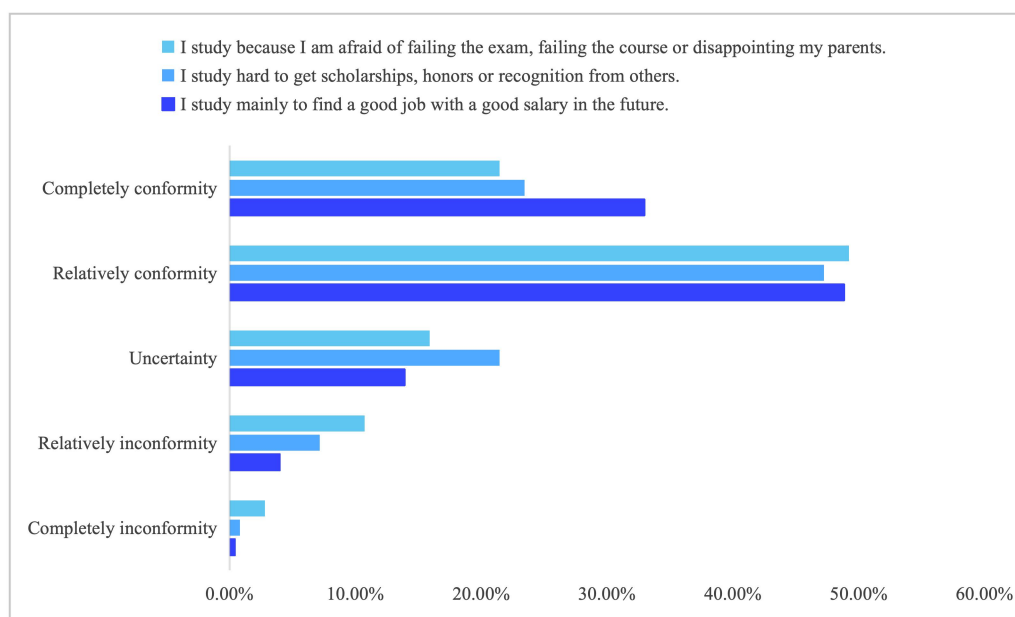

Figure 3. Extrinsic motivation matrix survey data histogram

c.The current teaching mode is difficult to stimulate the intrinsic motivation of college students

From further data analysis, it can be seen that in the survey results, most college students believe that "the interest and practicability of the course content" and "teachers' teaching level and personality charm" also affect students' learning motivation. In addition, in the answer to the open questions, we noticed that "the course is boring", "boring" and so on appeared many times, and more students' feedback should "reduce the boring theory infusion", "increase the interest of the classroom", "teaching should be more vivid and interesting", and so on. From the above, it can be seen that our current teaching mode cannot fully stimulate students' internal thirst for knowledge and curiosity (Yue, 2024).

d.The stability of learning motivation is not enough, and it is easy to be interfered by the external environment with the tendency of procrastination

The survey found that the motivation of college students' self-study is not very stable. More than 60% of college students think that their self-control is poor and they cannot control themselves well (see Figure 4);

Nearly half of the students feel that they are often dragged down by themselves and cannot often complete the specified tasks in time(Chen et al., 2024).The first reason is that students' self-management ability and willpower are insufficient(Khalid et al., 2024).Second, they are in the process of being monitored for a long time, unable to achieve autonomous learning, and lack the habit of autonomous learning. At the same time, the learning motivation of college students is unstable and will be affected by various external factors, such as peer pressure, extracurricular activities conflict, etc., which makes it difficult for them to adhere to long-term and continuous learning. For some students' feedback that "the plan is difficult to implement" and "needs to be reminded by others", it also fully exposed the phenomenon that college students' self-control ability is weak. Efforts should also be made on how to better plan goals, do a good job in time management, and conduct behavior regulation.
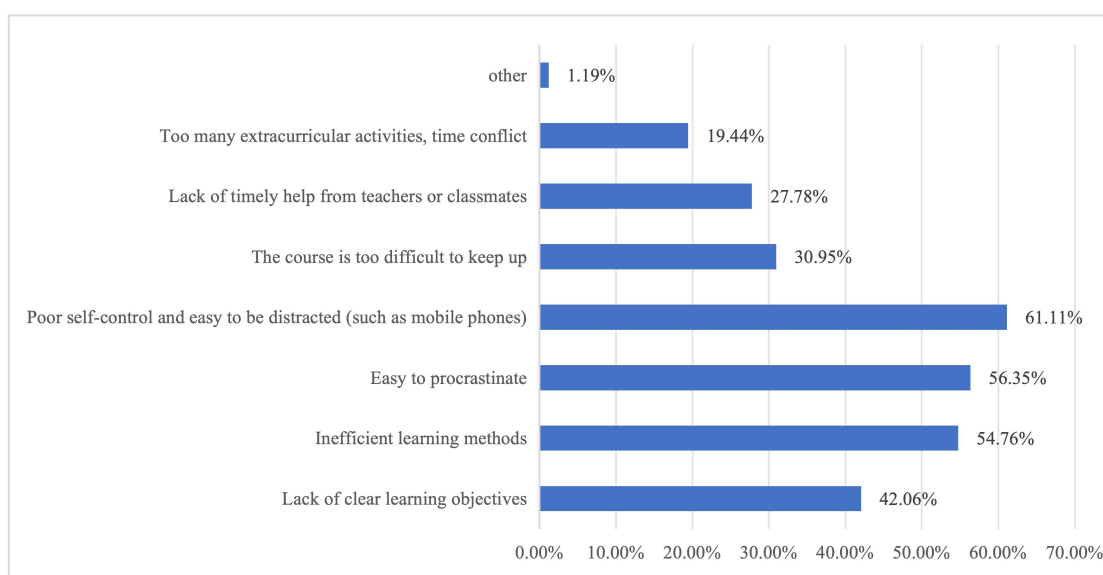

Figure 4. Bar chart of learning difficulties survey data

e.There are significant differences in learning motivation among different groups of students

Due to the different characteristics of running schools in different colleges and universities, there will be some differences in student groups. The differences come from the influence of disciplines, social development and external environment. From the perspective of grade, senior students pay more attention to employment and development prospects. The level of intrinsic motivation in school decreases with the growth of grade, showing a stronger practical utilitarian purpose. This is because the pressure, social expectations and self-positioning near graduation make senior students' learning goals more oriented to career development. For the lower grade students, they are more vulnerable to the influence of teaching methods and class atmosphere. This reflects that with the higher grade of college students, learning is to complete the task rather than simply for fun.

Professional differences enable science and engineering students to play a better role in "self-efficacy". For professional learning or related tasks, they can be more confident in their ability to solve problems, which is also in line with the characteristics of logic, objectivity and preciseness of science and engineering. In contrast, students of Humanities and social sciences are more affected by some external factors, such as obtaining rewards, obtaining external recognition, or the influence of classmates around them, so the learning motivation of students of Humanities and social sciences has a certain herd mentality. The reason is that the field of Humanities and Social Sciences involves more elements such as diversity and subjectivity, so it is easy to be influenced by the outside world.

3. Cause analysis

3.1. The employment pressure and utilitarian orientation of the social environment have a profound impact on students' learning motivation

The current social environment affects college students, and the competition in the job market is becoming more and more fierce(Yao et al., 2013).Employers have high requirements for students' academic qualifications and abilities, which makes many college students start to study professional knowledge hard at the beginning of admission, in order to obtain better employment opportunities, higher starting salary or better promotion, so they spend a lot of time and effort to research, practice and increase their resume materials, so as to enhance their competitiveness with others. At the same time, society also pays more attention to "usefulness" and "success", and the popular idea of "success learning" also encouraging students' psychology of wanting to score and win prizes in this environment. In this process, the students gradually abandoned their original interest in knowledge itself, as well as their love for the subject and their conscious awareness of inquiry (Pan & Gauvain, 2012).

3.2. There are obvious deficiencies in the curriculum, evaluation mechanism and resource allocation in the education system

From the perspective of schools, the curriculum, teaching methods and assessment methods will have a certain impact on students' learning enthusiasm. From the perspective of students themselves, the content of some textbooks is updated very slowly, or even out of date (Ira Yanti et al., 2023). Moreover, the teaching method is single, mainly based on the teacher's explanation, with less interaction in class, and few group discussions, let alone practice opportunities. Students lack an impulse and interest from teachers to participate in classroom teaching(Yue, 2024).The current "score only" evaluation standard focuses on one-time performance evaluation, such as performance ranking, which will inevitably be unfair to those who need to pay more energy, make greater progress and have more outstanding comprehensive ability in the learning process(Tu et al., 2022).This has exacerbated the phenomenon of students' learning for examination. In addition to these factors, many colleges and universities have insufficient educational resources in the process of carrying out academic guidance and psychological support, which makes some students often unable to get professional guidance that meets their needs when facing learning related problems such as how to choose courses, how to study and how to plan for the future. At the same time, when they encounter problems due to academic frustration or excessive pressure, it is also difficult to get professional psychological help in time, which will actually weaken their self-drive.

3.3. Students have problems with vague goals and lack of self-discipline

From the perspective of students, the lack of some core abilities and attitudes of students will also seriously affect the internal drive of students. For example, most students do not know what their learning and development goals are after entering school and are confused about future planning. They do not know what to learn for and to what extent, resulting in no internal drive and lack of learning methods, and most students' self-management control ability is weak, easy to indulge in mobile phones, do not like to do homework, and develop the habit of procrastination and evasion(Khalid et al., 2024),cannot achieve effective time management and behavior control. At the same time, some students will have serious self-denial due to lack of self-confidence when they encounter learning difficulties. When they encounter thorny problems, they often have an idea that they almost want to give up, which will also put students in a negative and unfavorable state of learning.

4. Coping strategies to improve motivation and academic performance

4.1. Deepen the reform of education and teaching and strengthen the stimulation of intrinsic motivation

Schools should strive to implement the reform of student-centered teaching mode to improve students' sense of being taught and self-participation. In terms of course content, we should pay attention to integrating the basic theory of professional knowledge and the most cutting-edge knowledge into the course. We should not only simply teach basic theoretical knowledge, but also combine professional knowledge with professional

practice, so that students can better understand the problems existing in reality, and improve the practicability and interest of the course content(Luo, 2024).On the other hand, for teaching methods, we can promote the problem-based teaching method, project-based teaching method and flipped classroom teaching methods, and apply different methods such as group cooperation, classroom debate and classroom discussion to the classroom, so as to enhance the attraction of the classroom and mobilize the students' subjective initiative(Cao, 2025).To break the concept of "only score theory", we should establish a diversified evaluation system to evaluate students, pay more attention to the process evaluation in the actual evaluation system, weaken the utilitarian learning purpose from the evaluation level, pay attention to the degree of effort in the learning process, and investigate whether students have made progress in the process of mastering knowledge(Tu et al., 2022).

4.2. Improve the allocation of resources in academic guidance and psychological support to enhance learning stability

Schools should establish scientific and professional academic guidance and psychological evaluation systems. Once students' academic burnout is detected, they should prepare for it in advance and give necessary guidance and support (Yu et al., 2014).In addition, the artificial intelligence chat robot platform can be used to provide students with basic academic guidance, provide students with suggestions from classroom teaching to career development, introduce optional courses suitable for them according to their needs, and recommend learning methods and methods suitable for them(Dawood, 2024).Targeted help can also be provided for different grades, especially for students in lower grades or with poor academic adaptability. In addition, it is also necessary to strengthen the mental health education of college students, organize and carry out mental health education courses, build accessible psychological counseling channels, help students relieve academic pressure and improve their ability to resist setbacks. Around improving students' self-management ability, arrange theme activities at a fixed time, guide students to understand, master and use time management knowledge, goal setting knowledge and self-control improvement knowledge, cultivate students' behavior planning ability and action execution ability, and encourage students to help each other, so as to create a good style of study and mutual aid atmosphere.(Keziah Ponnu Wilson & Anjana Sinha, 2025).

4.3. Guide students to set positive goals and improve self-efficacy

Finally, we should guide students to establish positive learning and development goals and enhance their learning orientation, initiative and internal drive. For example, the school can open over exhibition career planning courses, individual consultations, various theme class meetings and other forms to let students know themselves and understand themselves, and make daily task lists, semester plans and three-year prospects according to their own interests and advantages. In addition, the school can also organize students to visit enterprises or workshops outside the school, participate in career experience activities, invite outstanding alumni to give a report or introduce the successful learning experience of seniors and sisters, hold lectures on the frontier of disciplines and other methods to expand students' horizons, and establish their own development goals by letting students personally participate in real social activities, so that students can learn with pertinence and motivation.

In classroom teaching, teachers should be bold in innovation, and can insert some typical examples of using subject knowledge to solve practical problems in the teaching process, so as to strengthen students' self-confidence, or put forward phased and challenging learning tasks, such as project-based learning, exploratory problems and team cooperation tasks, so that students can gain and improve in the process of completing learning tasks, so that they can gradually establish and improve their self-efficacy. Teachers guide and support students from different angles and in many aspects, so that students can realize the transformation from "passive acceptance" to "active planning" and gradually become a person with a sense of direction and internal drive.

5. Summary

Based on the survey analysis, this paper takes the influence of learning motivation on academic performance as an example, explores the relationship between the two, and finds problems from the survey. The survey results show that learning motivation is positively correlated with academic performance in general, and self-efficacy and intrinsic motivation play a greater role in generating positive academic performance. In addition, at present, students' learning motivation in colleges and universities are generally utilitarian and unstable. These problems are greatly affected by social factors. At the same time, the defects of the education system itself also have a certain impact. In view of the above problems, we can take the following ways to improve reform the teaching mode to stimulate students' intrinsic motivation; Improve academic guidance and psychological services and strengthen students' academic stability; Help students set goals and improve students' self-efficacy. I hope this paper can provide some reference value for the school to improve teaching and also hope it can have some significance for the school to promote the comprehensive development of students.

DATA AVAILABILITY STATEMENT

All data supporting the findings of this study are included within the article and its supplementary materials.
Additional data may be made available from the corresponding author upon reasonable request.

AUTHOR CONTRIBUTIONS

Hongjuan Tang: Conceptualization, Methodology, Writing – Review & Editing.
Yuanyuan Nie: Data Collection, Formal Analysis, Writing – Original Draft.
Xiaoran Liu: Investigation, Validation, Visualization.
All authors have read and approved the final version of the manuscript.

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ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was conducted in accordance with the principles of the **Declaration of Helsinki**.
All participants provided informed consent prior to data collection.

COMPETING INTERESTS

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

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