The Construction of College Students' Habit Guidance System based on Action Control Theory

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Abstract. In modern society with rich information, the behavior of college students born after the year 2000 shows new characteristics. In the face of temptations, as well as the significant differences in learning methods between universities and high schools, freshmen are prone to be confused and shaken in their self-control, which brings pressure of academic difficulties. In order to help freshmen quickly adapt to the university learning methods and develop good learning habits, based on the theory of behavior control, this paper constructs the habit guidance system of freshmen from three aspects: Students' network behavior, work and rest habits, and reading interest. We achieved satisfactory results through two years' practice in Beihang University.

1. Introduction
With the rapid development of the internet and information technology, a large number of various kinds of information quickly flow into the university campus, forming a new situation of university work in the information age. In this context, the college students born after the year 2000 have a broad perspective, active thinking and rich access to information. However, college students especially freshmen have relatively shallow experience. So they are more easily confused and shaken in the rich and colorful university life. This leads some students to the pressure of academic difficulties.

How to distinguish and choose in a large amount of information? How to make the right choice? How to strengthen the self-control of behavior? How to implement the right behavior? These all need the guidance of university educators.

In order to help the freshmen quickly adapt to the university study life and form good study habits at the beginning of enrollment, this paper systematically studies the behavior characteristics of college students in the new era from three aspects: learning behavior, work and rest habits and reading interest.

Furthermore, based on the Action Control Theory, this paper constructs the guidance system of freshmen habits. And then, taking the first-year undergraduates enrolled in the year 2017 and 2018 in Shoue College of Beihang University as examples, we carried out a two-year practice to analyze the relationship between students' habits and academic performance. We found that the construction of the habit guidance system of college students plays a significant role in promoting students' academic performance, and has a positive significance in the work of talent training in colleges and universities.

2. Behavior characteristics of Contemporary College Students

2.1. Network behavior
The popularity of mobile Internet brings great convenience to people's life. At the same time, some college students' self-control ability is not strong enough, and bad network behaviors also have a negative impact on college students' learning and life.

Relative research results show that 13.5% of college students in China are addicted to the internet. The phenomenon of college students' internet addiction has seriously squeezed their time for learning, affected their normal interpersonal communication, reduced the efficiency of brain operation, seriously affected their academic development, and is one of the important factors affecting their physical and mental health. There is a significant positive correlation between internet addiction and academic burnout at the level of 1%.[1]

The results of questionnaire survey show that there are some differences between the students with different performance in the length of online time. In terms of browsing content, the students with excellent scores are relatively concentrated in literature query and web browsing, while the students with learning difficulties are mainly focused on online games, audio and video entertainment, etc. The flow data of the students with learning difficulties in the normal class time is significantly higher than that of the students with excellent grades.

The internet behavior of college students is one of the important factors that affect their academic performance. How to prevent Internet addiction and guide college students' internet behavior to a beneficial direction has become a common concern of educators. In practical work, we should intervene students' network behavior in a reasonable way and guide students to allocate time scientifically.

2.2. Work and rest habits

We advocate the healthy work and rest habits of early to bed and early to rise, but some students are energetic and used to late to bed and early to rise. Some students also feel that the study efficiency is high at night, and they are used to late to bed and late to rise. What kind of work and rest habits each student adopts is gradually accumulated and formed in the life of more than ten years. Although there is no absolute right or wrong, there is at least one thing that can be sure. Most of the students who insist on getting up early and eating breakfast every day have strong self-control, regular life and learning planning.

The work and rest habits of college students have attracted the attention of some scholars. Zhang binghang et al.(2017) conducted a questionnaire survey on 372 students in some colleges and universities in Shandong Province. They found that the students who have time planning and can adhere to the rules of work and rest, often have good academic performance. Scientific, regular and reasonable work and rest habits are the important influencing factors of college students' academic achievements. But in practical work, many students have not formed regular work and rest habits, because of their inadequate cognition, the rapid development of the internet, learning and work pressure and other subjective and objective reasons[2].

University educators should explore appropriate methods to help students form scientific and reasonable work and rest habits, that meet their own physical conditions since the beginning of entering the university.

2.3. Reading interest

People can benefit from good reading habits for a lifetime. By studying the relationship between the borrowing behavior in the library and academic performance, we can judge the reading interest of university students. Furthermore, we can find the direction of reading interest that significantly affects academic performance, and analyze the reading habits of students with excellent academic performance. It is another important work of this study to guide college students to read useful books, promote their academic development, enrich and expand their knowledge, and improve their comprehensive quality.

Beihang University has carried out the general education mode since 2017. Freshmen mainly focus on general education so that university provide students with more comprehensive academic support
channels. For example, they introduce more high-quality academic report resources, human culture and art resources, professional publicity and introduction activities, etc.

In this process, we can find the direction of work through students' reading habits, to provide targeted help and guidance for students with different reading interests. This is also one of the channels to improve students' academic performance and comprehensive quality.

3. Guiding strategies of College Students' behavior habits

3.1. Action Control Theory

Behavior research is a classic problem in the field of economic and management. And Action Control Theory is an important aspect of behavior research theory system. Action Control Theory was first proposed by Burrhus Frederic Skinner (1904-1990). The theory of behavior control comprehensively uses the knowledge of psychology, management, sociology and economics to solve the problem of behavior control in various fields [3].

Due to the possible conflict between long-term benefits and short-term benefits, behavioral decision makers may show different preferences at different time points. So that under the influence of some factors, the actions of decision makers may deviate from the optimal choice [4] [5]. According to this view, although the decision-makers know the harm of negative behavior, they often lack enough self-control ability under the temptation and are controlled by the short-term temptation. In order to overcome the temptation and pursue the right choice, the decision-makers' self-control behavior completely depends on the decision-makers' psychological will [6].

Specifically to college students, because of the fact that college life is rich and colorful, all kinds of information flow quickly, the temptation to college students increases. In the face of temptation, most students have good self-control ability. But some other students are weak in self-control, addicted to the network. They cannot adjust the relationship between learning and extracurricular activities, and are unable to adapt to the fast-paced learning life of the university. Their behavior deviates from the optimal choice path. It is quite necessary for educators to help freshmen guide and control their behaviors scientifically and reasonably.

Action Control Theory is mainly used to guide and control the behavior of human. Based on Action Control Theory, the system control human behavior by using the methods of project control, resource control and return control. So that they only engage in the advocacy behavior that is conducive to the realization of the system goal [3]. This paper applies this thought and method to the control and guidance of freshmen's behavior, to help students quickly adapt to college life and develop excellent study and living habits.

3.2. Behavior control strategies of College Students

(1) Control strategies of college students' network behavior: Although internet addicts know the harm of internet addiction to their study and life, they are often unable to resist the pleasure of surfing the Internet. Their short-term psychology transcends their long-term rationality and fails to achieve self-control of their behaviors. Therefore, educators should design proper programs, integrate relevant resources, encourage and guide students, and transfer their attention from internet to studies. Shoue College of Beihang University has designed the "mutual learning group" project, which encourages students to supervise and urge each other in the form of groups. Furthermore, the project awards the groups with excellent self-study times, so as to improve the time proportion of learning behavior.

(2) Control strategies of college students' work and rest habits: After entering the university, some students irrationally allocate their time, resulting in irregular work and rest time, which affects the quality of study and life. Although they also know the advantages of regular work and rest, they cannot control their work and rest behaviors. Therefore, educators should design work and rest habit training programs to urge college students to get up early and form excellent living habits. Shoue College of Beihang University has developed the project of "To be early birds". It encourages students to get up early and go to read in the morning. Through daily marking in software, it records
the times of students getting up early, and gives rewards to students who perform well in the project, so as to promote students to form the habit of getting up early.

(3) Control strategies of college students' reading interest: University life is rich and colorful, especially in the background of general education. To provide suitable development path for different students is an important issue for university educators to consider. Shoue College of Beihang University discovers the characteristics of students and designs different projects for different students according to their reading interest. For example, for students with academic difficulties, excellent teachers are invited to tutor alone. They carry out competition training for excellent students, organize robot forum for students who are good at scientific research, try their best to find out the characteristics of each student and design the most suitable personalized development path.

3.3. The construction of habit guidance and behavior control system

Shoue College of Beihang University applied the Action Control Theory to the practical work of students' training. According to the characteristics of students' behavior, it designed an effective program for students' learning, built a habit guidance system for students, and helped freshmen solve the problem of self behavior control. The habit guidance and behavior control system of college students is shown as the following figure 1.

![Fig.1 Habit guidance and behavior control system of college students](image)

4. The practical test effect of the habit guidance and behavior control system

With Action Control Theory, Shoue College of Beihang University designed a habit guidance and behavior control system according to the behavior characteristics of college students. The system has been tested by 1055 freshmen enrolled in 2017 or 2018 and achieved satisfactory results.

4.1. Learning habit control with the project of "mutual learning group"

Shoue college has 566 undergraduate students enrolled in 2017. According to the characteristics of students' online behavior, Shoue College has designed a "mutual learning group" project to guide students to reduce their online time and increase their learning time. Students are transferred from dormitories to classrooms, which overcomes the bad habits of internet addiction. A total of 286 students signed up for the "mutual learning group" program, and they are combined to form 78 mutual learning groups, covering 50.18% of the total number of students enrolled in 2017 in Shoue college.

The data on students' academic performance are shown in Table 1. Statistics show that the academic performance data of 286 students participating in the "mutual learning group" project is significantly better than that of 280 students not participating in the project.
We compare the academic performance data of the students who participated in the "mutual learning group" project and the students who did not participate, and do the t-test to see difference significance. From the perspective of students' academic performance, the sig value of Shoue ranking is 0.007, the sig value of university ranking is 0.008, both less than 0.05, indicating that there are significant differences between the two groups at the level of 1%. This shows that the academic performance of 286 students who participated in the "mutual learning group" project is significantly different from 280 students who did not participate in the project.

In view of the successful application practice of 2017 undergraduate students, Shoue college has comprehensively promoted the "mutual learning group" project for 2018 undergraduate students, requiring all 489 students enrolled in 2018 to participate in the project, and encouraging everyone to participate actively.

The results of correlation test show that there is a significant correlation between the students' self-study times and the average score at the level of 1%, and a significant correlation between the students' self-study times and the college rank at the level of 5%. The more self-study times are, the higher the average score is, and the better ranking is. This proves once again that the "mutual learning group" project plays a significant role in promoting and improving the academic performance of college students, which is an effective way of academic work.

Since 286 students enrolled in 2017 participate in the project "mutual learning group", while in 2018, Shoue college has promoted the project for all students. In terms of the overall academic performance in the first year, students enrolled in 2018 have made great progress compared with 2017.

4.2. Guide of work and rest habits with the project of "To be early birds"
Whether the work and rest habits are regular or not, for most of the students, is the problem of students' self-control ability, as well as the problem of time planning ability.
According to the characteristics of students' work and rest habits, Shoue College developed corresponding measures, launched the project of "To be early birds", encouraged students to get up early, have breakfast and read in the morning, do not be late for class, guided students to develop good work and rest habits, improved academic performance and quality of life.

Under the guidance of the project, the number of students who have the habit of getting up early has gradually increased. Among the 566 students of 2017, 256 students have formed the habit of getting up early, accounting for 45.23%. Of the 489 students in 2018, 251 formed the habit of getting up early, accounting for 51.33%, which is about 6 percentage points higher. And the overall academic performance of 2018 is also better than that of 2017.

Table 4 Comparison of academic performance of students with different work and rest habits

| Enrolled year | Habit            | index    | First year average score | First year University ranking | First year College ranking |
|--------------|------------------|----------|--------------------------|------------------------------|----------------------------|
|              |                  | Mean     | N                        | Standard Deviation           |                            |
| 2017         | Not getting up early | 80.3845 | 310                      | 9.71513                      | 489.058                    | 167.234                    |
|              | Getting up early  | 82.062   | 256                      | 7.62846                      | 462.878                    | 158.361                    |
| 2018         | Not getting up early | 81.4431 | 238                      | 7.77432                      | 437.324                    | 142.209                    |
|              | Getting up early  | 82.2172  | 251                      | 6.43505                      | 431.767                    | 140.575                    |
| Both         | Not getting up early | 80.8442 | 548                      | 8.93198                      | 474.577                    | 158.233                    |
|              | Getting up early  | 82.1359  | 507                      | 8.10710                      | 464.785                    | 154.757                    |

We divided all the students into two groups with and without the habit of getting up early for comparative observation. The results show that 256 students in 2017 who have the habit of getting up early have a weighted average score of 82.06, which is 1.68 points higher than 80.38 of students getting up late. 251 students in 2018 who have the habit of getting up early have a weighted average score of 82.22. The score is higher than 81.44 of students who are not used to getting up early.

The academic performance data of the students who have formed the habit of getting up early is significantly different from that of the students who have not participated in the program and do not have the habit of getting up early. The results of the significance test show that their academic performance is significantly different at the level of 5%.

Whether or not to participate in the "To be early birds" program, has a significant impact on the progress of students' academic performance. Good habits of living and rest have a significant role in promoting academic level. The key to the successful intervention and control of Shoue College on students' work and rest habits lies in: through the analysis of historical big data, we have keenly caught the positive correlation between early rising and academic performance, and designed "To be early birds" reasonably. The program helps most students form good work and rest habits, and improves the academic performance of students.

4.3. Reading habits mining based on the project of "personalized training camp"

According to students' interest in reading, Shoue College develops personalized programs to teach students in accordance with their aptitude and promote the diversified development of students.

The first is to develop projects for students with excellent talents. For students who often borrow competition books and have solid basic academic knowledge, they can precisely train excellent talents
for discipline competition. In 2018, a total of 337 Shou students won prizes in various disciplines competitions.

Second, for students who are good at scientific research, and students who often borrow extracurricular science and technology books, they organize technology competition training such as robot forum. 105 Shou students won awards in various science and technology competitions and achieved fruitful results in 2018.

Third, in view of the special circumstances, a Shou special training camp is organized to implement precise assistance. Such as, providing basic academic guidance resources for students with academic difficulties, ethnic minority students and other interested students, opening up a special time and place for special guidance. The average score of mathematics analysis of students enrolled in 2017 is 75.19, 55 students fail, with a failure rate of 9.72%. While, the average score of mathematics analysis of students enrolled in 2018 is 85.50, only 10 students fail, with a failure rate of 2.04%. The rapid decline in the rate shows that the system plays an important role in helping students with academic difficulties.

5. Conclusion
This paper uses Action Control Theory to explain the behavior characteristics of college students. Considering the self behavior control situation of contemporary college students, together with the different representations of network behavior, work and rest habits, reading interest, we designs incentive projects, scientifically allocates relevant resources, sets up incentive methods appropriately, and comprehensively uses the project control method, resource control method and feedback method[7], to control students' action. So that we can achieve the goal of guiding students' behavior and cultivating students' habits.

It has been proved by practice that the system of habit guidance and behavior control plays an important role in the formation of freshmen's habits and the promotion of academic progress. The project of "mutual learning group" effectively overcomes the habit of internet addiction and helps students to allocate their time and energy to study; "To be early birds" helps students form the excellent habit of getting up early and improve the quality of daily learning and life; "personalized training camp" provides appropriate development guidance for different students and promotes the diversified development of students. The experience of Shoue College shows that the Action Control Theory has a positive significance in the talent cultivating process of colleges and universities.

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