

Investigation and Research on College students' online Learning behavior and its influencing factors -- Taking Northeastern University at QinHuangdao as an example

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Abstract: *Since the outbreak of the new crown epidemic, at the request of the Ministry of Education, colleges and universities in China have carried out many online teaching activities of different scales. Because of the repetition of COVID-19's epidemic situation, it is very necessary to promote and improve the online teaching mode and distance education in our country. It is of great significance to the development of higher education in our country to study college students' online learning behavior and its influencing factors, and put forward solving measures and behavioral countermeasures on this basis. To this end, a number of network teaching activities have been carried out to conduct research and development from the perspective of students. This paper analyzes the influencing factors of college students' online learning behavior, and puts forward some feasible suggestions to improve the quality of online teaching.*

Keywords: *College students, online learning, influencing factors*

1. Introduction

By reading a large number of survey literature on online learning, it is found that the current research is mainly aimed at the external influencing factors of students' online learning effect, but there are few research results on the internal influencing factors. In terms of solving measures, most of the existing studies have put forward suggestions on the external influencing factors such as online learning platform and teaching side. Therefore, combined with their own online learning experience set up a preliminary questionnaire, found that the internal factors affecting college students' online learning experience is mainly the lack of self-control. Then, with the help of the guidance of teachers, combined with the results of the first survey, we re-set up the questionnaire, and supplemented the questionnaire by interviewing some college students. Finally, after the analysis of the results of the questionnaire and interview, the research results are obtained, and the opinions and suggestions to improve the efficiency and satisfaction of college students' online learning are put forward.

2. Investigation and Design of College students' online Learning behavior and its influencing factors

2.1. Research object and data collection

All the data in this study come from undergraduates. In the first half of 2020, the school responded positively and conscientiously implemented the educational policy of "non-stop teaching, non-stop teaching" [1] and carried out online teaching activities for half a semester. An online questionnaire survey was conducted in February 2021 to collect the relevant data. Before the outbreak of the epidemic, the sample school had not formally carried out large-scale online teaching activities, and this study was carried out after the first large-scale online teaching activity in the sample school, followed by the resumption of offline teaching for half a semester [2]. This survey can maximize the characteristics of students' online learning behavior and study its influencing factors.

The questionnaire is set up through the "questionnaire Star" Mini Program, through the class QQ

group and QQ, and the promotion of the questionnaire is unlimited. The open time of the questionnaire is 48 hours in a row. The questionnaire was mainly distributed in each grade class group, and a total of 588 valid sample data were received through the online q

Table 1: The basic information of the investigation

| Grade | Number of people | Percentage |
|----------------|------------------|------------|
| Freshman year | 189 | 32.1% |
| Sophomore year | 205 | 34.9% |
| Junior year | 194 | 33% |

2.2. Survey tool

The questionnaire of this study is set by sophomores combined with their own experience and feelings of online courses [3], and supplemented and improved by the help and guidance of teachers in the relevant research direction of the school. Through the collected data, this paper summarizes the factors that affect the online course experience most deeply in the process of online learning of the students in the sample school. This questionnaire is divided into three parts (Table 2). The first part is the basic information of the students, the grade they are in. The second part is about the factors that affect their online learning most reflected by the students of our school. For example, the learning atmosphere, online learning channels and resources, teacher-student interaction and so on set up detailed questions. In the third part, we investigated the students' satisfaction with online learning during the epidemic, and set up open questions for students to provide suggestions to improve the efficiency of online learning[4][5]. The reliability of the questionnaire is analyzed, and the reliability coefficient is 0.82, which shows that the data is reliable.

Table 2: Questionnaire

| Basic information of students | Ask for basic information such as grade | | | |
|--|---|--------|---|-------------------|
| | Category | Number | Sample item. | Question type |
| Influencing factors of online learning | Classroom atmosphere | 3 | The feeling that online learning at home brings to you during the epidemic. | Choice |
| | Learning platform | 2 | Do you think whether the online learning platform and software are convenient to use at this stage? | Choice |
| | Teacher-student interaction | 3 | Which of the following aspects of online teaching do you think needs to be improved? | Choice |
| | Learning resources | 2 | Which of the following learning channels or resources do you prefer in online learning? | Choice |
| Online learning satisfaction | Satisfaction | 3 | Please rate the satisfaction of online learning during the epidemic | 2 choose + 1 Open |

3. Analysis of survey results

(1) Online learning platform or software has little influence on the improvement of college students' online learning satisfaction.

Through a large number of studies on the influencing factors of online learning, it is found that many researchers have put forward improvement suggestions and suggestions for the online platform, and believe that the existing online learning platform can not meet the needs of students. However, through the survey of this study, it is found that 60.54% of the students think that the online learning platform and software at this stage are simple, convenient and easy to use. 19.73% of the students think that the online learning platform and software are fully functional, but the lack of proficiency in operation affects their online learning experience. Only 19.73% of the students think that the online learning platform and software need to be improved at this stage.

At present, there are a variety of online learning platforms and learning software on the market. 68.03% of the students in this study think that the diversity of online learning platforms and software is only helpful to improve their online learning experience. 23.81% of the students thought it was very helpful, and 8.16% thought that the emergence of a variety of online learning platforms and software was not helpful to their online learning experience. It can be seen that the overall satisfaction of college students to the online teaching platform and software on the market is higher as a whole. The existing online

learning platforms can basically meet the online learning needs of students, and they have little impact on college students' online learning experience.

(2) Teachers need to improve their online teaching skills.

In the "shortcomings of online learning compared with the previous conventional teaching methods", 63.95% of the students chose online teaching to be difficult to communicate directly with teachers, resulting in a certain impact on learning efficiency. In the question "affecting the effectiveness of learning in school", 44.9% of the students chose to encounter problems in online learning and could not ask teachers and classmates for help in time. It can be seen that in online learning, the lack of teacher-student interaction has a great impact on college students' online learning experience. In the open-ended question "aspects that teachers need to improve in online teaching" in this questionnaire, 62.59% of the students reported that the teachers could not solve the problems raised by the students in time. 53.06% of the students hope that teachers can organize more student discussions and guide students to think, and more than half of the students choose these two options. It shows that in online teaching, the lack of communication between teachers and students and the delay of online teaching affect the online learning experience of college students.

The research team found that in online teaching, teachers choose a variety of teaching methods, such as distributing their own teaching screenshots, live streaming online, distributing online audio related to courses, and so on. Through this survey, it is found that 42.18% of students prefer online live streaming, 35.37% of students prefer teachers' teaching screenshots, and about 10% of college students choose other teaching methods. Therefore, the choice of online teaching methods also has a certain impact on students' learning experience, teachers should timely understand the more satisfactory teaching methods of students, combined with the characteristics of the course to choose the appropriate teaching methods.

(3) Lack of self-control is the biggest factor affecting college students' online learning satisfaction.

In this questionnaire, "online courses at home during the epidemic, you spend more time studying than offline teaching", 54.42% of the students chose "less", and 28.57% of the "almost" students accounted for 28.57%. Only 17.01% of the students spent more time in offline study at home during the epidemic than before the epidemic.

In the single choice question "the feeling that online learning at home brings to you during the epidemic", 60.54% of the students chose "the home environment is quiet, but lack of learning atmosphere. The concentration is poor", 19.73% of the students chose "the home environment is noisy and unsuitable for learning", and 17.69% of the students chose "study at home is more comfortable and the environment is better". 2.04% chose "home environment has no effect on their study".

When exploring the impact of the lack of classroom atmosphere in traditional teaching on online learning during the epidemic, the research team set up the question "you think the lack of classroom atmosphere in online learning has an impact on your learning". 53.06% of the students said "have a certain impact", 31.29% of the students had a "great degree of influence", and 15.65% of the students chose the "almost no impact" option.

4. Analysis of survey results

(1) Learning environment and learning atmosphere have great influence on college students' online learning.

In this paper, the result of "in the pure online course during the epidemic is set to X, and the result of online learning at home during the epidemic is set to Y". The comparison between the two results is shown in Table 3.

Table 3: Contrast result

| X\Y | There is much noise in the home environment, so it is not suitable for study | The environment at home is quiet, but there is a lack of learning atmosphere and poor concentration | The study at home is more comfortable and the environment is better | The home environment has no effect on one's study |
|--------|--|---|---|---|
| More | 27(36%) | 18(24%) | 30(40%) | 0(0.00%) |
| Less | 45(18.75%) | 177(73.75%) | 15(6.25%) | 3(1.25%) |
| Almost | 15(11.90%) | 72(57.14%) | 33(26.19%) | 6(4.76%) |

Through the data results in the above table, it can be seen that the learning environment and learning atmosphere have a great impact on college students' online learning.

(2) Classroom atmosphere has a certain impact on college students' online learning, but more importantly, college students' self-discipline.

Set the survey result of the question "the time you spend on learning in the pure online course during the epidemic period than that of offline teaching" as X, and set the survey result as Y to the extent to which you think the lack of classroom atmosphere in online learning affects your learning. The two results are compared as shown in the table.

Table 4: Contrast result

| X\Y | The degree of influence is very great | Have a certain influence | Almost no impact |
|--------|---------------------------------------|--------------------------|------------------|
| More | 24(32%) | 21(28%) | 30(40%) |
| Less | 90(37.5%) | 138(57.5%) | 12(5%) |
| Almost | 24(19.05%) | 75(59.52%) | 27(21.43%) |

Most college students think that the lack of classroom atmosphere in online learning has a certain impact on their learning time. However, most college students who spend more time studying online at home than at school think that the lack of classroom atmosphere has little effect on their learning (about 40%). Most of the college students who spend less time on online learning at home than at school think that the lack of classroom atmosphere has a certain impact on their learning (about 57.5%). It can be seen that although the classroom atmosphere has a certain impact on college students' online learning, but more importantly, college students can maintain self-discipline, enter the learning state, and not be disturbed by the outside world.

(3) College students who study at home for longer are more satisfied with their study.

In this survey, we asked respondents to rate their online learning satisfaction during the epidemic on a scale of 1 to 10. "10" represents complete satisfaction, and satisfaction decreases from "10". The survey results are shown in Table 5.

Table 5: Satisfaction result

| Option | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------|------|-------|-------|-------|--------|--------|--------|--------|------|-------|
| Proportion | 6.8% | 2.04% | 6.12% | 8.84% | 13.61% | 22.45% | 21.09% | 13.61% | 3.4% | 2.04% |

In this paper, the result of "the time you spend on learning in the pure online course during the epidemic is set to X, and the score of students' satisfaction with online learning during the epidemic is set to Y. The comparison between the two results is shown in Table 6.

Table 6: Contrast result

| X\Y | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|
| More | 4% | 0.00% | 8% | 12% | 0.00% | 20% | 20% | 20% | 12% | 4% |
| Less | 10% | 3.75% | 7.5% | 8.75% | 20% | 20% | 18.75% | 8.75% | 1.25% | 1.25% |
| Almost | 2.38% | 0.00% | 2.38% | 7.14% | 9.52% | 28.57% | 26.19% | 19.05% | 2.38% | 2.38% |

5. Conclusion

This paper is based on a number of online teaching activities carried out in the Northeastern University at QinHuangdao and conducts research from the perspective of students. This paper analyzes the influencing factors of college students' online learning behavior, and puts forward some feasible suggestions to improve the quality of online teaching. On this basis, it is of great significance to put forward solving measures and behavioral countermeasures for the development of higher education in our country.

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