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A Survey Report on College Students' Special Needs for Network Technology in Online Education

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Abstract: Nowadays, the proportion of college students teaching online has increased according to the current social development. Some college students can't adapt to online courses, which seriously affects their learning effect. In this paper, the attempt is made to use network technology to improve the teaching effect. By designing a questionnaire, more than 400 students in five junior colleges and universities, hoping that the special needs of college students' education for network technology can be valued by schools, families and all sectors of society.

1. Introduction

As the COVID-19 outbreak swept across the world in 2020, college students were unable to go back to school normally or had to attend classes online for a long time during the epidemic prevention and control period. Frequent switching between online and offline causes some students to have mental health problems such as boredom, depression, panic and anxiety, which seriously affect their studies. It is an urgent problem to strengthen college students' education under normal epidemic prevention and control, fully grasp the special demand of education for network technology, relieve their psychological pressure and promote their healthy growth [1]. Based on the characteristics of the COVID-19 outbreak and the highly realistic learning situation of college students under the epidemic, this research designed a questionnaire with college students as the research target, and conducted an online survey of more than 400 college students in five different universities, different grades and different levels on their demand for highly realistic learning situations. By developing a "face-to-face" class based on VR technology for students, it tried to make use of virtual reality technology to improve the special needs of some college students to some extent while supporting multi-users to learn together online [2].

2. Questionnaire Design

The questionnaire was designed to investigate the special needs of college students in network technology under the epidemic situation, record the basic situation of students (gender, educational level, major, environment, etc.) [3], and made statistics on the learning health and special learning needs of college students with the learning health self-assessment scale and special learning needs

questionnaire. It was divided into three parts. The first part contains 6 multiple-choice questions to collect the basic personal information of the respondents and their environment. The second part contains 20 questions to understand the learning health of the respondents. The third part contains 7 questions to investigate the special learning needs.

2.1. Objects and Methods

468 students from 5 universities in China were selected through online questionnaire to investigate their needs in highly realistic learning situations. The "face-to-face" class based on VR technology was developed, and the virtual reality technology was used to support multi-users to learn together online. At the same time, the questionnaire survey of some college students' special needs was improved to some extent. In this survey, 468 questionnaires were distributed and 441 were collected, as shown in Figure 1 [4], of which 400 were valid and 41 were invalid, with an effective recovery rate of 94%, as shown in Figure 2. The number of male students surveyed accounted for 48% and that of female accounted for 52%.

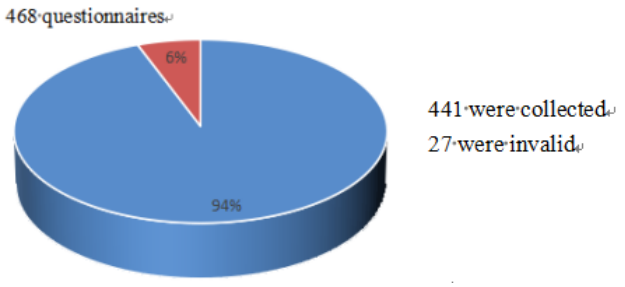

Figure 1: Questionnaire recovery.

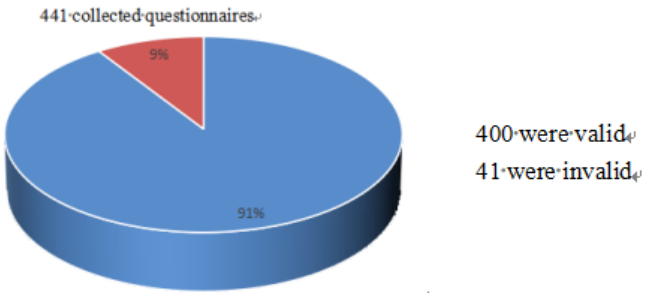

Figure 2: Validity of questionnaires.

2.2. Evaluation of Survey Indicators

Gender dimension: the overall demand of "face-to-face" class based on VR technology of female students was higher than that of male, as shown in Figure 3.

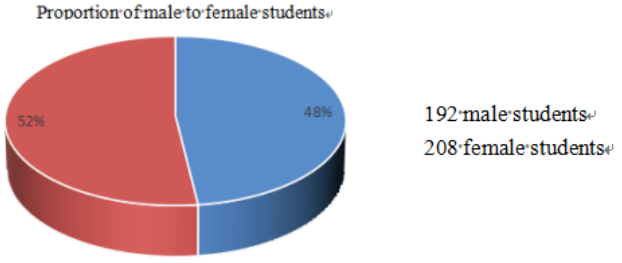

Figure 3: Demand for "face-to-face" class based on VR technology.

Epidemic environment: Students' demand for "face-to-face" class based on VR technology was greatly affected by the epidemic environment. There was little demand in areas with stable epidemic situation.

Learning health: Some students had unsatisfactory learning health, with the most common manifestation of anxiety over the epidemic, followed by unhappiness. Special learning needs are needed to alleviate the above problems.

Differences in grades and regions: Nearly half of the students had significant differences in their special learning needs under the influence of different grades, different regions, the confirmed cases around them and other factors. The fourth grade was obviously higher than other grades, and sophomore students were obviously superior to other grades, as shown in Table 1, Network technology related questionnaire content.

Table 1: Network technology related questionnaire content.

	Options	Number of students	Proportion
Do you believe the improvement of network technology can improve your online learning status?	Yes	320	80%
	B. No	80	20%
Is there any network technology to improve your online learning needs?	A. Yes	265	66.25%
	B. No	135	33.75%

The "face-to-face" class based on VR technology was developed for students, and the virtual reality technology was used to support multi-users to learn together online, while improving the special needs of some college students to a certain extent. The classroom effect is shown in Figure 4-5.

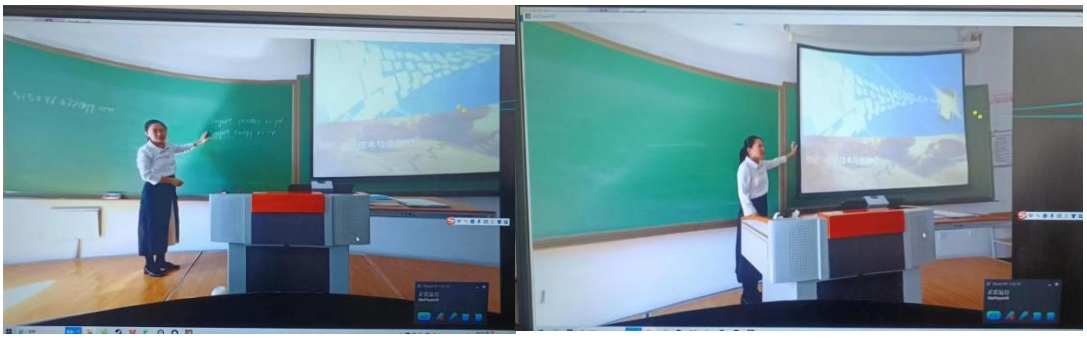

Figure 4: The effect of "face-to-face" class based on VR technology 1.

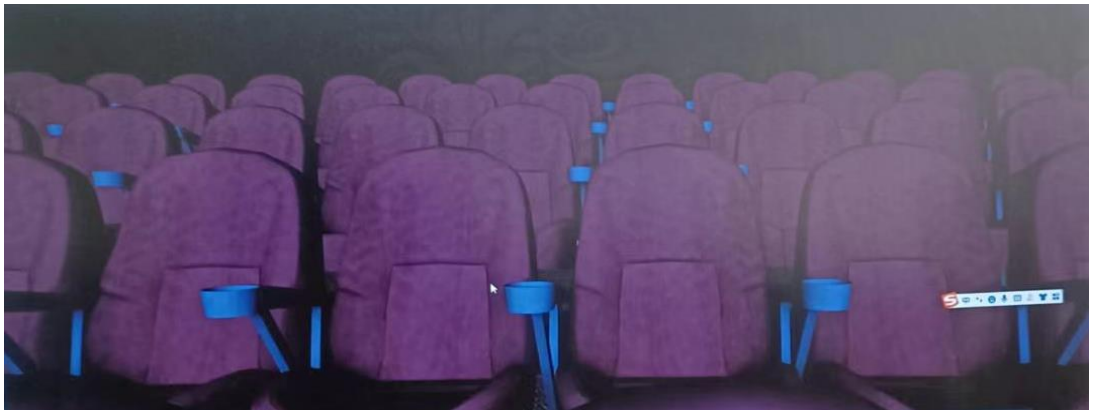

Figure 5: The effect of "face-to-face" class based on VR technology 2.

3. Conclusions

Nowadays, due to the pressure of the epidemic and various comprehensive reasons after the COVID-19 outbreak, there have been some problems in the overall learning health of college students. It is one of the important ways to solve the problem by developing a “face-to-face” class based on VR technology for students, using virtual reality technology to support multi-users to learn together online, and at the same time improving the special needs of some college students to a certain extent.

Limited by equipment and technology, VR experience is not suitable for all college students, especially those who are sensitive to the weight of VR glasses and the external stimulus of sound. It is believed that with the development of science and technology, the improvement of 5G wireless technology and audio and video chip technology will be better improved.

Appendix: Questionnaire

Survey Report on College Students’ Special Needs for Network Technology under Epidemic Prevention and Control

Thank you very much for participating in this survey. This survey is conducted by random sampling and is anonymous. All information is for statistical analysis only and will not affect your work and life.

This survey will take you about 20 minutes. There is no right or wrong answer to all questions. Please make your choice according to your actual situation. Thank you for your cooperation!

Part One: Basic information and environment.

1). Your gender ()?

A. Male B. Female

2). You are a ().

A. Freshman B. Sophomore C. Junior D. Senior

3). Your major ()

A. Arts B. Science

Part Two: Online learning situation.

1). Do you find the teaching content boring?

A. Yes B. No

2). Do you feel like there is a lack of innovation in the teaching methods?

A. Yes B. No

3). Do you feel that classroom management is not strict?

A. Yes B. No

4). Do you feel that you are lacking in learning ability?

A. Yes B. No

5). Do you feel a lack of interest in study?

A. Yes B. No

6). Do you think your phone is attractive?

A. Yes B. No

7). Do you think the exam is simple and simple?

A. Yes B. No

8). Do you think the curriculum is too concentrated?

A. Yes B. No

9). Do you feel weak in self-control?

A. Yes B. No

10). Do you think the teaching equipment is aging?

A. Yes B. No

11). Do you believe the improvement of network technology can improve your online learning

state

A. Yes B. No

12). Is there any network technology to improve your online learning needs?

A. Yes B. No

Acknowledgements

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