Research on the Current Situation and Influencing Factors of College Students' Online Learning Investment in Local Application-Oriented Universities
Take Linyi University as an Example

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Abstract. Affected by the development of information technology and the new crown epidemic, online learning has received more and more attention. Online education has the advantages of acquiring knowledge without limitation of time and place, but it also has many shortcomings. In online education, students and teachers cannot communicate in a timely manner, and teachers cannot grasp students' learning status in a timely manner. This paper starts with the current situation and influencing factors of students' online learning investment in Linyi University, and puts forward strategies and suggestions on how to improve the quality of online learning: encourage teachers to establish online courses suitable for students; improve students' autonomous learning ability; create a good learning environment.

Keywords: online learning · learning engagement · influencing factors

1 Introduction

In 2018, the "Education Informatization 2.0 Action Plan" was born, and its basic goal is to basically achieve "three completes, two highs, one major, three changes, and three new" by 2022. The three new ones are striving to build a new model of talent training under the conditions of "Internet+", developing a new model of Internet-based educational services, and exploring a new model of educational governance in the information age. New teaching modes are constantly being explored, such as mooc, spooc, etc. There are also many new information-based teaching tools, such as Rain Classroom, and many online platforms, such as Chinese University MOOC, etc.

In January 2020, when the Wuhan epidemic broke out, students had to study online at home. Since then, many excellent online teaching tools have come to the fore, such as Tencent Conference and DingTalk Online Classroom. But no matter what kind of teaching mode, what kind of teaching tools and software has its own advantages and disadvantages. Online learning can be free from geographical control, and even enjoy the
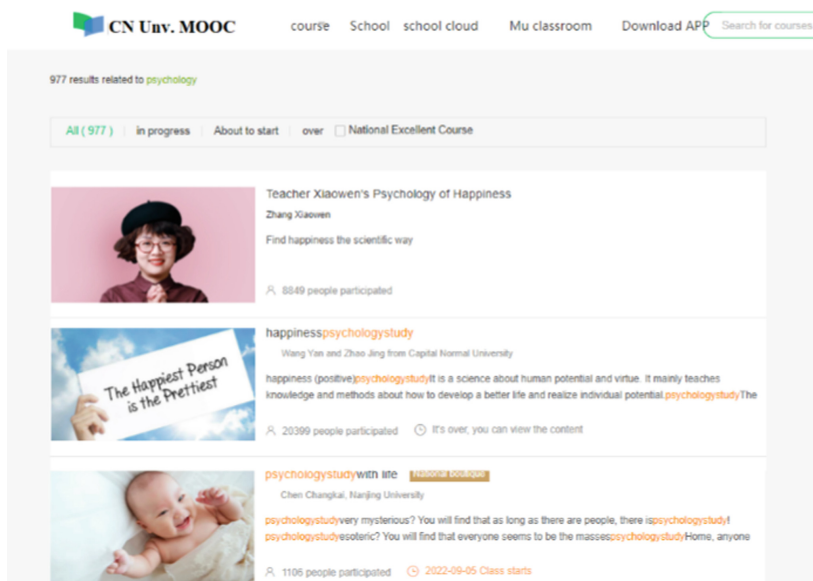
Fig. 1. Love Course Learning Platform [CN Unv, MOOC]

best teaching resources in the country. Online learning can learn from some platforms that many schools cannot learn knowledge, expand their knowledge, and get free resources for some students who want to take the certificate test. See Fig. 1 Love Course Learning Platform. However, for students who are not self-disciplined, they may be lazy and not study, and teachers cannot grasp the students' learning status. So in online learning, what is the learning investment like? What factors affect the quality of online learning? This paper summarizes through surveys, interviews, literature analysis and other aspects.

2 Survey on the Status Quo of Students' Online Learning Engagement

2.1 Questionnaire Survey

In order to gain an in-depth understanding of the current situation of online learning, this paper takes online college students of Linyi University as the survey object, and conducts a survey of online learning through questionnaires. It lasted 15 days and received 600 questionnaires. It mainly includes three parts: first, university information (grade, major); second, online learning tools for different majors; third, the current situation of online learning and the factors that affect online learning.

From the comparison of online learning tools of different majors in Table 1, it is found that the engineering and science majors mainly use notebooks as online learning tools, while a large part of the liberal arts majors use learning. If it is not easy to expand, it will be limited by some software, which will indirectly affect the school efficiency and interest of students.

Table 1. Comparison of online learning tools for different majors [Owner-draw]

online learning electronic devices	Liberal Arts Major		Engineering and science majors	
	number of copies	percentage	number of copies	percentage
cell phone	260	43.33%	134	22.33%
notebook	224	37.33%	320	53.33%
flat	20	3.33%	32	5.33%
Desktop	96	16.00%	114	19.00%

Table 2. Daily online learning hours for different grades [Owner-draw]

online study time		
freshman	Sophomore	junior year
5.86	5	4.2

Table 3. Problems existing in online learning (multiple choice) [Owner-draw]

Options	Proportion
The quality of teaching content is not high	30.80%
Trouble logging in and registering	36.69%
Cannot ask questions to the teacher at any time, communication is inconvenient	40.87%
Self-control is not strong, it is difficult to complete learning tasks	46.96%
Online learning is easy to distract	63.50%
Network problems such as network freezes have a greater impact	70.34%
other	10.84%

In Table 2, the daily online learning hours for different grades, it is found that freshman students have more internship hours than sophomores. At this time, they have just entered the university and have dreams and want to stand out, so they will spend more time on online learning. Gradually in the third year, students will find that there are too many interference factors, and many times they cannot stop studying, so the duration is short.

In Table 3, among the students who participated in the questionnaire, 70.34% of the students believed that the problems of the network itself such as network freezes in online learning have a great impact on online learning. 30.8% of students believe that the low quality of teaching content is a problem that affects the quality of online learning, and it is the problem that students report the least.

2.2 Interview

Combining the characteristics of behavioral engagement, cognitive engagement, emotional engagement and social interaction engagement, this paper conducts interviews with some students of Linyi University. Behavioral engagement refers to the explicit performance of online learning activities, emotional engagement refers to the emotional manifestation after online learning, generally manifested in learning interest; cognitive engagement refers to formulating a reasonable plan in order to achieve a certain learning goal. Based on the feedback from the interviewees, several questions were synthesized.

(1) The interviewees have basically experienced online learning and maintained it for a certain period of time;
(2) The interviewees said that it is inconvenient to ask the teacher if there are questions during online learning, which will wipe out part of their interest;
(3) The interviewees generally have the habit of formulating plans and learning goals, but it is difficult to implement them and needs to be led by teachers;
(4) The theme, content, and teaching methods of online courses will determine whether students are willing to actively participate in online learning activities. If it is boring, many students will find it difficult to persevere;
(5) For online learning, you can find some topics of interest to learn from the platform, you can use your own strengths, you can also search for some topics that you didn't understand in class to learn, and you can check for omissions;
(6) Online learning is suitable for independent learning and is not suitable for collaborative learning and communication and discussion.

Through interviews, this paper finds that online learning students themselves are related to learning winter and their interests; teachers need to communicate with students in a timely manner and feedback students' information in a timely manner; the design of course content must be interesting and useful.

2.3 Literature Analysis

In 1998, Hiltz proposed the concept of online learning. Restricted by the technical conditions at that time, online learning did not develop very quickly, and the development of concepts has also experienced about 10 years. With the development of information technology and network technology, the advantages of online learning have gradually developed. Since 2012, the influence of MOOCs and derived private broadcast courses has been increasing. Both online and offline mixed teaching mode and pure online learning mode have emerged. Wang Yashuang analyzed the current situation and influencing factors of students' learning engagement in an empirical study on students' learning engagement and its influencing factors. Hu Yanrong, Liu Hongjiu, and Dai Dan analyzed some influencing factors of college students' participation in online learning, such as student factors and teacher factors, in the article "Research on College Students' Classroom Learning Engagement and Influencing Factors from the Perspective of Ecology." Li Yan and others believe that the lack of self-discipline is the biggest challenge faced by college students in online learning, and parents and teachers need timely intervention

to achieve better results. Jia Wenjun and others believe that it is also very important to strengthen the pheromone of teachers and increase the support of online learning environment. [3].

Regarding high-quality online education, according to relevant literature materials, the author believes that high-quality online education requires the following factors: 1. Professional and efficient online learning tools. 2. Sufficient online learning time can be guaranteed. 3. The network environment, such as fast network speed. 4. Teachers online. [1].

3   The Impact of Engaging in Learning

Through the questions of questionnaire design, this paper draws the following statistical analysis.

Through the statistical analysis in Table 4, it is found that there are also many problems for college students to study online, which can be summarized as follows:

Self-factors: Self-factors are the main factors that affect the degree of online learning investment. If the learning goals are clear, the learning motivation is strong, and there is a strong interest, the efficiency of online learning will be high, and you will be able to work down-to-earth and gain something.

Teacher factor: Teachers are the leaders of the curriculum, and they also play a pivotal role in the development of online courses. By using various information tools, selecting appropriate teaching resources, interesting teaching methods, and fully interacting with students, it can not only arouse students' enthusiasm for learning, but also encourage students to participate in online learning.

Environmental factors: Online learning will be affected by the speed of the Internet, as well as the impact of computers and other equipment. If the Internet speed is fast enough and the computer configuration is high enough, many students will complain less in this regard, and it can also improve to a certain extent. Students' interest in learning. In addition to this environmental factor, if you study online in the dormitory, you will also be influenced by your peers. Everyone is actively studying and participation will increase. [4].

Table 4. The proportion of influencing factors [Owner-draw]

online learning factors	number of copies	percentage
Poor adaptability of students to online courses	256	42.67%
There is little interaction between students and teachers during online classes	314	52.33%
Students are vulnerable to interruptions during online learning	156	26.00%
Student's home internet is slow	252	42.00%
Students are not proficient in using online tools	78	13.00%

4   Suggestions for Improving Online Learning

4.1   Encourage Teachers to Build Online Courses Suitable for Their Students

In order to improve the teaching quality of online learning, Linyi University began to encourage teachers to build online courses in 2018, giving each course 50,000–100,000 construction funds, hoping that teachers can build high-quality online courses. Figure 2 is part of the online courses in 2018.

4.2   Improve the Self-learning Ability of College Students

Online learning reflects a college student's independent learning ability. Learning is a student's inner thinking activity. It is not enough to rely on teachers' "teaching". "Teaching" only provides conditions for "learning". The key is to rely on yourself. Therefore, it is necessary to pay close attention to the essence, and let students set a goal in advance, also called career planning. This is a long-term goal, and the long-term goal is composed of small goals. In order to achieve these small goals, the current situation, what should students do? This is also what a teacher must guide. With goals, students will have motivation. If they fail to achieve a small goal, they will be closer to the big goal. During this period, teachers can actively interact with students and solve students' questions in a timely manner. Interaction and participation can enhance the autonomous learning ability of college students, so as to learn more and learn better. [2].

4.3   Create a Good Online Learning Environment

Improving the online learning environment of college students requires the synergy of many factors such as college teachers, students, network platforms, and related software. In the school, the school tries its best to satisfy the students with a high-speed network,

Serial number	College	Course Title
1	law school	Legal Wisdom for Life
2	School of Education	Spss application
3	College of Pharmacy	Microbiology
4	School of Resources and Environment	Cartography
5	Art school	China on the tip of the pen - "Calligraphy Appreciation"
6	School of Resources and Environment	Environmental Protection Overview
7	School of Media	Media Ethics and Regulations
8	School of Education	Educational psychology
9	Business school	Tax Law and Tax Accounting
10	Mathematics and Statistics	Python language programming
11	ool of Automation and Electrical Enginee	Smart Manufacturing Technology
12	ool of Chemistry and Chemical Engineer	Organic chemistry

Fig. 2. Some online courses in 2018 [Owner-draw]

and even the wireless network can be spread all over the campus for free, to create a good network environment for the students, and then guide the students to maintain a quiet environment in the dormitory, so that online learning can be deepened. In online teaching, teachers should also compare the advantages of different teaching platforms, redo teaching design, and create a good teaching atmosphere.

5   Conclusion

Although online learning has many advantages, it is necessary to start from the actual learning effect of students and comprehensively analyze the current situation and shortcomings of online learning. Only by finding the root cause of the insufficiency of online learning can we truly improve the effect of online learning.

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