

Research on the Current Situation of Online Education Under the Background of Epidemic Prevention--Based on Network Text Analysis

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Abstract: The outbreak of epidemic accelerated the development of online education. Under the background of epidemic prevention, online education has shown significant advantages, but it also exposed many problems. This paper takes February 2021 February to 2022 as the time interval, crawler software is used to capture the target text from the relevant websites of schools in different regions of China. The text data is analyzed by Rost Content Mining 6 software. The shortcomings of online education include six aspects: the degree of network patency, students' self-discipline ability, students' vision level, online learning atmosphere, online teaching environment and teaching platform system, the paper puts forward improvement measures for the above problems.

Keywords: Online Education; Current Situation Research; Text Analysis

Introduction

In December 2019, the epidemic broke out in Wuhan city, and then spread to the whole country. All walks of life were greatly hurt, and the epidemic brought many inconvenience to people's daily life. In order to stop the spread of the epidemic to the campus, in January 2020, the State Council of the People's Republic of China and the Ministry of Education of the People's Republic of China issued a notice in succession, requiring all schools and colleges to postpone the start of school in spring, the time to be determined. In order to ensure the smooth progress of China's education and teaching work, the Ministry of Education of the People's Republic of China issued an initiative to use the network to carry out the "non-stop" activities in an orderly, effective and in-depth manner.

As early as the SARS period in 2003, online education with digital television and radio as the main media played an important role. Today, with the rapid development of the Internet, online education relying on the Internet has made great progress. Online education has a variety of forms, with the advantages of breaking the geographical restrictions, sharing teaching resources, and convenient playback. At the same time, the problems exposed have also caused heated discussion in the society, such as low learning efficiency of students, limited communication between teachers and students, etc. This article aims to explore how to better implement online education and further improve the theoretical system of online education.

1. Research methods and objects

1.1 Research methods

The text analysis method refers to entering the deep layer of the text from the surface layer of the text to discover the internal law and significance of the research object. The text analysis method can save a lot of time in processing data, and can quickly quantify the text information, and transform the explicit communication content into quantitative and systematic

data materials, with strong applicability. In this paper, ROST Content Mining 6 software is used to process the target network text by word segmentation, word frequency analysis, semantic network analysis, emotional analysis and other technologies.

1.2 Research objects

The Internet not only promotes the development of online education, but also provides a vast virtual space for netizens to express their views. The anonymity of the online world makes people more willing to express their true inner thoughts, resulting in massive text data ^[1]. The data in this paper comes from the official websites, microblog, WeChat official account and post bars of many schools in different provinces in China. The data is collected by using crawler software, and 1635 comments related to "online education" are selected. After excluding invalid data such as emoticons, pictures, repeated comments, and so on, 1419 valid comments are available, totaling 18371 words, with the time interval from February 2021 to February 2022.

2. Research steps

Firstly, unify words with similar semantics, which can simplify the analysis steps and make the analysis results more accurate. Secondly, build a custom vocabulary to avoid splitting a single vocabulary. Then filter the irrelevant words and add them to the word segmentation filter table, which will not affect the research results. Finally, convert the text into the txt format that can be recognized by the ROST Content Mining 6 software.

2.1 Analysis of high-frequency feature words

Word frequency analysis is to count the frequency of words in text data. Generally speaking, the higher the word frequency is, the more important the word is ^[2]. Perform high-frequency feature word analysis on the preprocessed target text data to obtain preliminary results, and extract the top 20 high-frequency feature words and frequencies, as shown in Table 1.

Tab.1 Word frequency analysis

Ranking	Terms	Frequency	Ranking	Terms	Frequency
1	Student	352	11	Advantage	109
2	Education	311	12	Internet	97
3	Study	304	13	Knowledge	95
4	Teacher	280	14	Self-discipline	95
5	Course	241	15	Time	83
6	Efficiency	207	16	Region	82
7	Share	202	17	Effect	79
8	Problem	156	18	Ability	73
9	Resources	137	19	Difficulty	58
10	Convenience	130	20	Guarantee	50

Student and teacher ranked first and fourth respectively, representing the two main bodies of online education. Education, study and course are also subject-related activities, indicating that they are important components of online education. Efficiency, share, convenience, advantage, diversity and other commendatory words indicate the benefits of online education. However, online education also has many disadvantages, which are confirmed by the frequent occurrence of words such as visual fatigue, difficulty in interaction, and cold in text data. From the perspective of high-frequency feature words, online education has advantages and disadvantages, and the overall benefits outweigh the disadvantages. We should overcome difficulties in practice and promote the better and faster development of online education.

2.2 Semantic Network Analysis

The high-frequency feature words only reflect the number of words appearing in the text, and can't reflect the correlation between words ^[3]. This paper uses the NetDraw function in ROST Content Mining 6 software to build a semantic network diagram for text data, as shown in Figure 1. This is convenient to intuitively display the progress of online education

and provide the overall element relationship of text data, and provide ideas for further analysis.

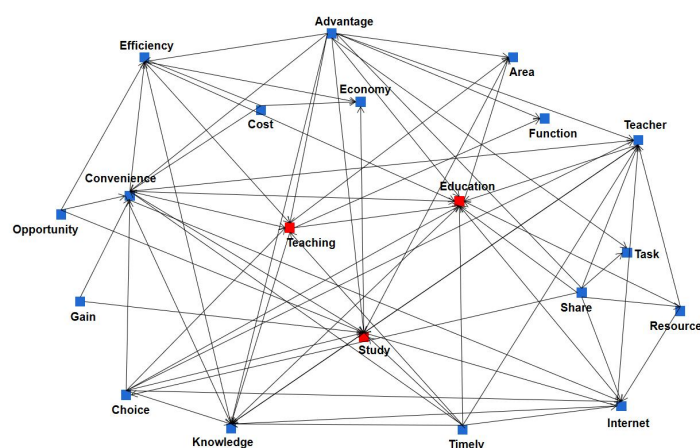


Fig.1 Semantic Network Analysis Chart

It can be seen from Figure 1 that the semantic network of comments on online education presents a multi-center structure, and education, study and teaching constitute the core of the semantic network diagram. In addition, the extension and radiation of Internet, efficiency, convenience, share, teacher, timely, knowledge and other core words reflect the participants, hardware facilities and advantages of online education. According to the text, the advantages of online education are as follows: First, in the context of epidemic prevention, online education can break the space limit and transfer the classroom to the online, so that schools that can't start school on time can still carry out education work normally, thus implementing the initiative of the Ministry of Education to "stop school without stopping school". Second, The sharing of educational resources enables the areas with relatively weak teachers to enjoy the cutting-edge teaching achievements, which is conducive to improving teachers' teaching skills and students' learning achievements. Third, Online education makes the acquisition of knowledge more convenient. The advantages of unlimited playback, multiple courses, anytime and anywhere make up for the shortcomings of traditional offline classes.

The development of online education is a product of the times, especially the arrival of the 5G era, which has further promoted this trend. However, online education also has many shortcomings. The self-discipline level of students, the smoothness of the network and the emotional input of teachers all affect the effectiveness of online education. The specific problems are as follows.

2.2.1 Poor network in remote areas hinders teaching

The Research Report on the Development of China's Online Audiovisual in 2020 pointed out that as of June 2020, the number of online audiovisual users in China had exceeded 900 million. Affected by the epidemic, online demand continued to rise, and the number of online audiovisual users further increased. However, due to the differences in economic and technological levels, some remote areas have poor network signals, and it is difficult to implement online teaching in the form of live broadcast. All these will bring great challenges to online education, and will further increase the educational difficulties in backward areas.

2.2.2 Students' lack of self-discipline affects the teaching effect

Online education breaks the limitations of space and distance in traditional classrooms. Even if it is thousands of miles away, everyone can still study at home at the same time. Before the outbreak of the epidemic, students' learning was restricted by the school, and the teaching effect was guaranteed. However, after online teaching, teachers and students are divided into two places, and teachers' binding force on students is reduced. In addition, the familiar environment in the family makes students more relaxed, distracted and self-disciplined. Students will do other things unrelated to learning, and the teaching effect is greatly reduced. Therefore, online education relying solely on students' self-discipline is difficult to achieve the same teaching effect as classroom teaching.

2.2.3 Long-term viewing of electronic equipment reduces vision level

At the beginning of the outbreak of the epidemic, schools across the country delayed the start of school in the spring, and students were isolated at home for online learning. Online teaching is supported by hardware facilities such as computers and mobile phones. Teachers and students need to face electronic equipment for a long time, which is very easy to cause eye fatigue, which has a great impact on students' vision level. According to the research of the World Health Organization, the high rate of myopia among adolescents in China ranks first in the world^[4]. At present, there is a trend of high incidence and low age of myopia among students in China, and online education under the background of epidemic prevention will aggravate this trend.

3. Countermeasures and suggestions

For schools, online education has an advantage that can't be ignored. It can show its skills when traditional offline teaching can't be carried out. However, we should also see the disadvantages of online education and put forward improvement measures for discussion.

3.1 Enrich teaching methods and break online education network barriers

In the early stage of the epidemic, online teaching was promoted by live broadcast, but live broadcast required higher network requirements for teachers and students. Online education can only be carried out smoothly if both networks are good. The network in remote areas is not smooth, and students can't meet the conditions. The single online teaching method is easy to be restricted by conditions and can't meet all the requirements of teachers and students. After practical exploration, in order to ensure the implementation of the call for "suspension without suspension", the school can take multiple measures such as live broadcast+recorded broadcast+video+audio to teach, and break the online education barrier caused by the poor network.

3.2 Strengthen the supervision of online education by means of technology

Use scientific and technological means to make up for the difficulties of teachers' supervision and students' self-discipline. Above all, we can learn from the anti-addictive measures of games. Simple questions appear on the screen of electronic devices every five minutes, and students can continue to learn only when they answer the correct questions. Furthermore, it can monitor whether the students face the learning screen to count the learning time to measure whether the students have completed the course learning, or it can release the in-class exam to check the students' learning effect.

3.3 Shorten the duration of online education courses

In 2018, China's juvenile myopia rate was 53.6%^[5], far higher than the world average. This is closely related to the long-term use of electronic devices such as computers and mobile phones. Taking 2 hours as the dividing point, students who use electronic products for more than 2 hours a day have 1.4 times the risk of poor vision than students who use electronic products for less than 2 hours^[6]. The traditional offline class is generally 40 minutes long. According to 4-6 classes per day, students need to watch online learning for 160-240 minutes a day. Primary and secondary school students have more courses per day, which is far more than 2 hours. Therefore, in view of the special situation of online education for epidemic prevention and control, we should scientifically design online courses, refine the key points of knowledge and shorten the teaching time.

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