

Research Article

Statistics and Analysis of Effective Data on Online Teaching of College English Audiovisual Teaching

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Since the end of 2020, the COVID-19 outbreak has partly changed the way people live and the way schools across the country teach. In order to solve the impact of the new coronavirus pneumonia pandemic on the opening of universities and classroom teaching, it is particularly important to study how universities implement and ensure the development of online foreign language teaching. This article aims to study the effectiveness of online teaching of college English audiovisual listening. We actively carry out teaching activities such as online teaching and online learning of English audiovisual teaching and perform statistical analysis of progress and the quality of college English teaching in online teaching. This article aims to combine these two paradigms, collect data and conduct qualitative and quantitative analysis, and analyze the accuracy of effective data in English audiovisual online teaching. This survey uses two survey methods: questionnaire survey and structured interview. In order to understand the interviewee's feelings and obtain more detailed feedback information, interviews about learning strategies were organized. The conclusion is that under the background of the "COVID-19 pandemic," college English courses based on various online learning platforms (such as MOOC) are very valuable learning experiences for students. In order to adapt the online learning, students need to use appropriate learning strategies. This kind of learning experience also provides valuable opportunities for students, enabling them to develop their independent learning abilities and review their learning achievements. College English course teaching based on multiple online learning platforms such as MOOC provides inspiration and experience for future college English teaching. Teachers become instructors for students to master and use learning strategies. Only teachers and students work together to ensure the quality of online teaching.

1. Introduction

1.1. Background. Affected by the new coronavirus pneumonia pandemic, the provincial education department has formulated guidelines to promote online teaching in all types of schools, that is, relying on existing platforms to open online learning channels to ensure that courses are not suspended. The goal of the policy is to ensure that students' can maintain the same learning effect by online learning. Therefore, online teaching and online learning must be carried out. According to the characteristics of foreign language teaching, we discuss how teachers can carry out online teaching activities during this pandemic period to ensure the progress and quality of foreign language teaching in colleges and universities.

1.2. Significance. As one of the factors affecting the effective teaching of college English, the design and realization of audio-visual course objectives are very important. College English can mainly cultivate students' English application ability, so it is necessary to use audition courses to cultivate students' speaking and listening. Therefore, it has far-reaching significance to conduct research from the perspective of objectives to observe the effectiveness of English listening and speaking teaching in universities. Theoretically speaking, on the one hand, research is conducted from a different perspective to explore the purpose of effective teaching, which expands the scope of effective teaching and learning. On the other hand, the survey can enrich the connotation of college English goals and provide references for further research. In practice, the research is beneficial to

teachers, school leaders, and students. This research from the perspective of teachers can awaken teachers' sense of goal and allow them to reflect on their own teaching in college English teaching. In other words, this research can provide positive feedback for teachers' education and self-reflection, so that teachers can form a systematic and overall view of the goal. Looking at leaders from the school's point of view, research can provide clues for promoting the professionalization of English teachers and, at the same time, provide references for managers to formulate education policies and plans.

1.3. Related Work. In this era of rapid development of Internet Plus, the reform of college English teaching keeps up with the pace of the times, and online education models have begun to emerge in the reform of English teaching, and they are becoming more and more popular. Leire C put forward the idea that the Massive Open Online Course (MOOC) aims to provide barrier-free education. The MOOC "Green Economy: Lessons from Scandinavia" was launched in 2015. MOOC learning activities are different from traditional online courses. To meet the expectations of stakeholders on the MOOC, teachers' continuous learning and adaptation are essential to e-learning, and learners' motivation may affect the success of the course. But at the beginning, when the online courses were opened, the teaching quality and effects presented in actual teaching were not as good as expected [1]. Jorg Mussig studied that during the COVID-19 pandemic, many educators were asked to provide courses online. A particular challenge is to implement practical laboratory experiments in the field of science and engineering. The main questions are as follows: How do students conduct laboratory experiments at home? In this case, how can applications on mobile devices provide help? How to organize experiments so that students can learn this topic in a self-motivating and exciting way [2]? Kim's research seeks to enhance the method of blending general English learning in online and offline English classes. Students can visit the class homepage in their spare time for online learning and communication, no matter where they are. This method is called the reverse learning model. The research compares the reverse learning model with the more traditional hybrid learning model to study the difference in effect. After the experiment, the comparative *t*-test of the two groups showed that the statistical reliability of 99.9% had a statistically significant difference [3].

1.4. Main Content. In order to understand the implementation status of teachers' online teaching and the effectiveness of students' learning at home and to further adjust and improve the school's online teaching management measures, the school used a questionnaire to survey the teachers and students of the whole school. The results show that under the premise of preventing and controlling the pandemic, teachers have found an effective teaching path for online teaching, which ensures the effectiveness and practicability of online teaching. On this basis, the school should strengthen the management of online teaching, improve the

teaching quality of online teaching, strengthen the guidance to students and parents, and not disturb the mental health education of students [4].

2. Effective Statistical Methods for Online Teaching

2.1. Effective Data Statistical Methods

2.1.1. Interview Method. After the open questionnaire were distributed, subjects were randomly selected to conduct interviews to explore the understanding of blended learning and English learning, to determine important themes of online English learning or issues that need to be further explored, and to understand the importance of online college English teaching through the Internet Influencing factors to interview the students and teachers in the later stage to improve the conclusion of the paper [5, 6].

2.1.2. Investigation Method. The use of convenient sampling methods to formally issue questionnaires to explore college students' English language concepts, English classroom learning satisfaction, online English learning students' satisfaction, and present corresponding teaching strategies based on the survey results [7] to investigate and verify the suggestions made.

2.2. Statistical Learning Theory. The learning process of the basic knowledge of this course is relatively flexible. The basic knowledge of English courses includes four aspects: listening, speaking, reading, and writing. The introduction explains why the theory in this section is used. Students can choose when and where to learn this part of knowledge according to their own characteristics, and they can learn repeatedly, which greatly improves the flexibility of learning and improves the efficiency of learning [8]. In this way, the specific composition of the function is expressed as (a_1, b_1) and (a_n, b_n) , and statistical learning needs to find the best dependence relationship between the above independent training sample $\{f(a, c)\}$ function set $f(a, C_0)$. When estimating the optimal result, the expected risk $R(c)$ should also be considered, as shown in

$$R(c) = \int L(b, f(a, c))dF(a, b). \quad (1)$$

The expression $L(b, f(a, c))$ shows that the prediction function learns to predict the loss of y .

$$L(b, f(a, c)) = (b - f(a, c))^2. \quad (2)$$

When we study the expected hazard function (2), we need to get the details of the joint probability density function $F(a, b)$ [1, 9]. In the context of similar algorithms, it is necessary to introduce the theorem of large numbers and introduce relevant empirical risk functions. The formula is as follows:

$$R_{\text{emp}}(c) = \frac{1}{n} \sum_{i=1}^n L(b_i, f(a_i, c)). \quad (3)$$

In the MOOC teaching process, there is a lack of control links and students learn at will, resulting in serious loss of students [10]. The MOOC course activity process is an autonomous learning process. Students need to have a strong sense of autonomy to complete the entire learning process, but for most students, this is not realistic. In addition, students' learning motivation may be of temporary interest and three-minute enthusiasm [11, 12]. Learning motivation is not firm enough, and it is destined that the investment of learning energy cannot be guaranteed. When learning interest is lost or the learning process is disturbed, students are easy to abandon the course and lose their way. Judging from the current study-tracking survey of MOOC students, the situation is basically the same [13]. Many courses have a considerable number of students, but there are absolutely very few students who complete the course from start to finish. This situation is due to the lack of management and control over the learning process [14]. Statistical learning theory summarizes a series of problems and limitations and proposes a new solution, that is, the probability of real risk and empirical risk meets the following conditions:

$$R(c) \leq R_{\text{emp}}(c) + h \left(\frac{\ln(2n/h) + 1}{n} \right) - \ln\left(\frac{n}{4}\right). \quad (4)$$

On the basis of meeting the classroom teaching reform of our school, we transfer the system platform to local or national application-oriented universities, aiming to lower the threshold of online teaching in similar universities, speed up the promotion of online classroom teaching mode, and give full play to the platform in a wider range. This will help us to improve the quality of higher education teaching [15]. According to (4), the risk components of statistical learning theory are empirical risk and risk confidence interval, which are related to the risk capital dimension h and the training sample set n .

$$R(c) \leq R_{\text{emp}}(c) + \Phi\left(\frac{h}{n}\right). \quad (5)$$

According to the characteristics of linearly separable problems, the optimal classification surface satisfies the following formula, which is not only suitable for multi-input and multioutput production departments but also can be applied to public departments such as schools for performance evaluation. The model does not need to set estimated parameters and can also simplify calculations. Secondly, it can compare its own development process vertically according to the relative efficiency of different time periods, or horizontally compare the relative efficiency of various departments, then find out the reasons, and propose measures to improve. According to (5), if the H value gradually increases, the model complexity and learning ability of statistical learning will also increase correspondingly [16]. According to the characteristics of the linearly separable problem, the optimal classification surface satisfies the following:

$$c \cdot a + e = 0. \quad (6)$$

Taking into account the influence of different values of different parameters on the model results, the normalization method is used to obtain the optimal classification surface parameters, which satisfies the restriction of

$$b_i[(c \cdot a_i) + e] - 1 \geq 0, \quad i = 1, 2, \dots, n. \quad (7)$$

3. Data Statistics Experiment

3.1. Online Teaching Technology. Ensuring the normal operation of the network is the basic prerequisite for ensuring online teaching. Due to a large number of students, the basic network conditions vary greatly from place to place, and using the same software to broadcast courses at the same time will definitely cause pauses, connection interruptions, sound transmission failures, and video signal instability [17]. This requires strengthening the coordination between the industry and the information department and the network operating company, actively cooperating and supporting, starting from the actual situation, and guiding students to "interleaved" log-in learning based on the local network situation. The interaction between students for local learning is helpful for their cultural exchange and oral communication. All network operating companies and software developers also provide teacher training for teachers at the beginning of the school year to ensure online foreign language teaching in colleges and universities [18, 19]. The training content will be expanded from the aspects of teacher literacy, course skills, and the use of related software. Teachers should learn and use online classroom teaching platforms, such as Yu Class, MO Class, and Tencent Class, to enhance the feasibility of online teaching in the Internet era [20].

3.2. Effective Data Statistics Steps. The content of the questionnaire used in the research includes two parts: basic information and latent variable information. The number of preliminary surveys was planned to be 850, and 800 questionnaires were returned. The recovery rate is 94%. This was mainly used to investigate the English learning concepts of college students. Among them, the sample size of students from grade one to grade four is 800 and were surveyed from two aspects of college English classroom learning satisfaction and online learning platform satisfaction [21]. Finally, after sorting out the collected questionnaire data, the validity analysis, standard deviation, T -test, and significance test are carried out. The use of questionnaires can better reflect the real thoughts of students, which is conducive to feedback on learning effects.

4. Online Teaching Survey Results

4.1. Survey and Research Results

4.1.1. Investigation and Research Results of College English Audiovisual Online Teaching. It can be seen from Table 1 that the study subjects were planned as 850 copies, but 800 questionnaires were actually returned. The ratio of men to

TABLE 1: Basic situation of survey subjects.

Gender	Number of people	Percentage
Male	600	75
Female	200	25

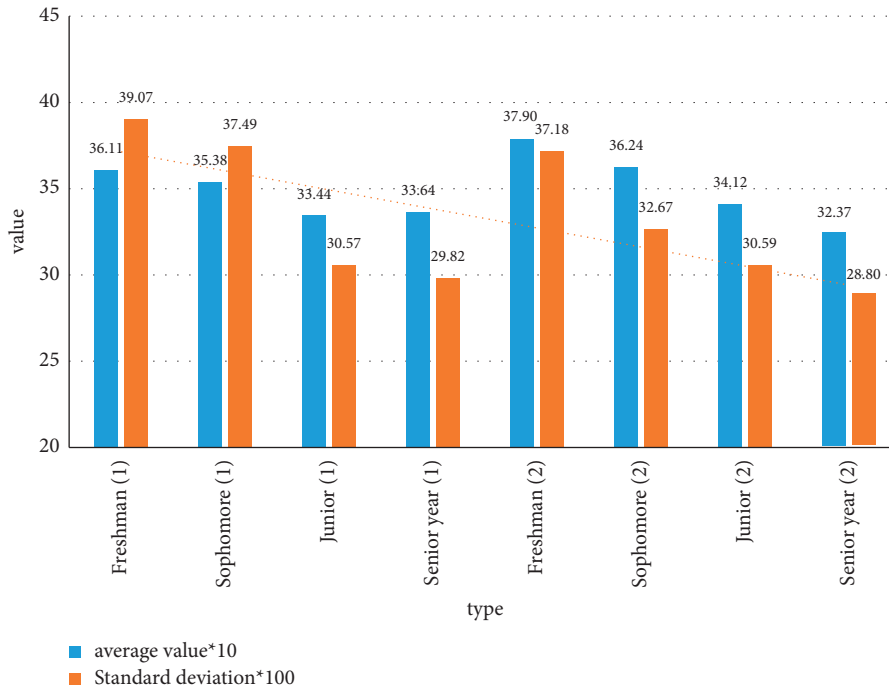


FIGURE 1: Overall satisfaction analysis table of Questionnaire Two and Questionnaire Three completed by different grades.

women is quite different. This study designed two questionnaires, namely, the College English Online Learning Student Satisfaction Survey (Questionnaire 2) and the College English Class Satisfaction Survey (Questionnaire 3), and 800 valid questionnaires were collected. The statistical analysis of the results mainly analyzes the following two aspects: first, the analysis of the overall satisfaction of college online learning and college English classroom students and second, the analysis of the difference between the college online learning and the college English classroom student satisfaction.

Figure 1 shows the satisfaction of Questionnaire 2 and Questionnaire 3, respectively. Regardless of online learning or classroom teaching, the degree of satisfaction from high to low is in the order of freshman, sophomore, junior, and senior. The reason for the highest satisfaction in freshmen may be that college English learning is easier than in high school. In the learning process, freshmen are more likely to meet their expectations and are more satisfied with their learning results.

As shown in Figure 1, students' satisfaction with online learning and classroom teaching is basically the same. No matter from which dimension, the satisfaction of Questionnaires 2 and 3 is above 3, indicating that students are

basically satisfied with English learning. In addition to the factor of personal operation network learning, the content of network learning has become a crucial factor for the evaluation of network learning satisfaction. In order to have a good effect of online learning, teachers of colleges and universities must change their consciousness and jointly improve the quality of online teaching content. They can purchase relevant high-quality teaching resources through special funds.

We carry out a statistical analysis of the different dimensions of the overall satisfaction analysis table of Questionnaire 2 and then the overall satisfaction analysis table of the different dimensions of the three questionnaires, and the results are shown in Figures 2 and 3.

From the data analysis in Figures 2 and 3, which show the overall satisfaction analysis of the three different dimensions of the questionnaire, we can find that the teacher's satisfaction exceeds 80%, so the teacher has the highest satisfaction. It can be seen that teachers and teaching facilities are also crucial factors, which indirectly shows that in traditional classroom English teaching, teachers play an important role, mainly based on the traditional teaching of teachers and students. The educational model puts higher demands on English teachers

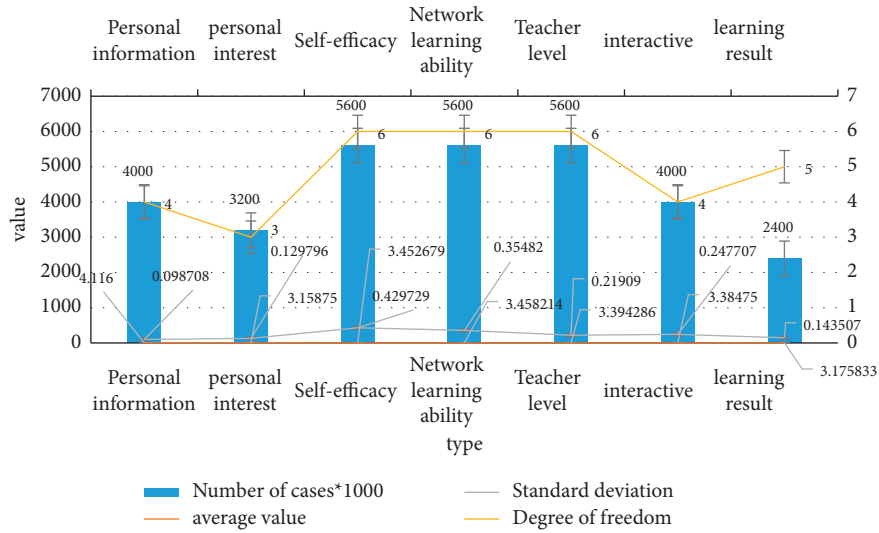


FIGURE 2: Different dimensions of overall satisfaction analysis table of Questionnaire 2.

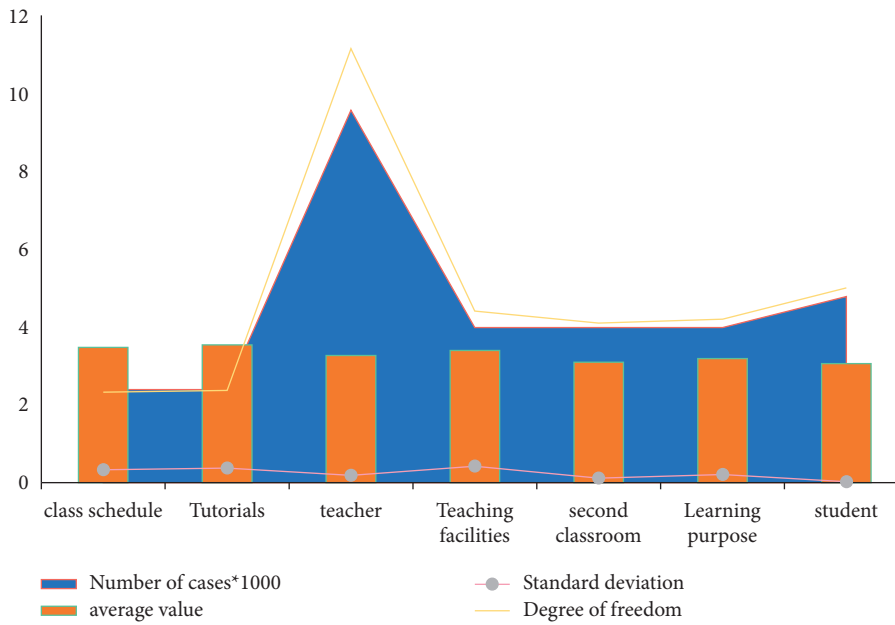


FIGURE 3: The overall satisfaction analysis table of the three different dimensions of the questionnaire.

TABLE 2: System building modules of the English online learning platform.

Module function	Effect
Course selection module	Choosing your favourite courses and teachers, and canceling the ones you do not like
Online course modules	The live and recorded courses can be interchanged in the study
Class practice module	Divided into preclass and postclass exercises
Evaluation module	Teacher evaluation, student mutual evaluation and self-evaluation, focus on process evaluation and summative evaluation
AC module	Convenient for teachers and students to communicate and learn

and also illustrates the necessity and urgency of online English teaching.

4.2. Validity Test. In this study, a questionnaire about online courses was used. According to the methods of searching and reading the relevant literature, expert evaluation, and personal interviews, the scale was revised several times before it was formally distributed. Therefore, the content of the questionnaire is highly effective. After testing, the correlation coefficients between each item in the questionnaire and its dimensions are higher than other factors. Other factors refer to factors that are related to the teacher's teaching and are not related to the classroom. These indicate that the internal consistency and validity of the scales in this study are relatively high.

According to Table 2, it can be seen that the online learning of English audiovisual listening and speaking is becoming more and more popular. Summarizing the abovementioned learning theories and social development trends, English learning has developed towards informatization, diversification, and ability. Students should occupy the dominant position in the learning process, but there are still large deviations in the actual learning life.

5. Conclusions

5.1. Survey Results. There are differences in the status quo of teaching in online courses. The results of gender differences show that boys' total scores, classroom participation, technology application, and awareness of the Internet are significantly lower than girls'. The curriculum design should consider how to mobilize boys' learning enthusiasm and grade differences. The results show the total score of the freshman. The curriculum design should consider the grade difference, and the learning process design should be more abundant. In online teaching based on network courses, digital courses can use digital processing technology and communication platform to complement offline teaching. Online courses break through the limitations of the traditional face-to-face teaching mode in terms of content and presentation form. By analyzing the standard requirements for reading, listening, and speaking of English courses, online teaching provides more alternative knowledge for teachers and students in teaching and learning. Wide range of content, broader time and space, and more convenient interactive channels have brought a new integration model and broad innovation space for foreign language education in colleges and universities. The deficiencies of this research focus on the following aspects: First of all, there are still relatively few related studies linking learning input research and online teaching. The author designed an online teaching model based on learning input based on previous experiences. Because the author's personal research is limited, omissions or fallacies will inevitably occur in the process of model design and application research. Secondly, the sample size of this experimental design is relatively small, so if the model is fully applicable to large-volume learners in other domestic colleges, there are certain problems.

Data Availability

No data were used to support this study.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this article.

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