Motivation of Students' Autonomous Learning in English MOOC Teaching Based on Big Data Analysis

Longyuan Xiao*
Jiangxi College of Foreign Studies, Nanchang, Jiangxi, China
*Corresponding author e-mail: xiaolongyuan@jxcfs.edu.cn

Abstract. With the rapid development of big data in my country and the large-scale promotion of English MOOC courses in recent years, students' autonomous learning has become more and more important. Autonomous learning by students is not only conducive to improving students' course performance, but also an important development factor for students' lifelong learning and sustainable development. MOOC impacts the traditional English curriculum and teaching mode. Some students' basic qualities are generally poor, their learning goals are not clear, the learning methods and objectives are not correct, and they lack active learning motivation and the ability to solve problems independently. It is an urgent task for us to improve students' learning motivation. The purpose of this article is to study the motivation of students' autonomous learning in English MOOC teaching based on big data analysis. Based on the relevant theories of educational psychology, this thesis describes the internal connection between the English MOOC teaching model under big data and the theory of learning motivation. This article makes a preliminary discussion on how to effectively combine English MOOC teaching under big data with learning motivation theory, so as to improve students' autonomous learning motivation. This paper proposes a comparative analysis method to compare traditional teaching and MOOC teaching to analyze its influence on students' learning motivation. This article puts forward the theory of interaction and autonomous learning. Finally, a variety of manifestations are adopted, and the comparison trend chart is intuitively displayed to users. Experimental research shows that the survey results show that the experimental class score is 25.5, while the traditional class is 19.30, both of which do not reach 90% of the total score, indicating that the students' motivation for learning English is insufficient. Using the teaching model of English MOOC teaching based on big data analysis helps to improve the overall student's learning motivation level. According to the experimental results, it has increased by 16.6%.

Keywords: Big Data, English MOOC, Teaching Methods, Students' Autonomous Learning

1. Introduction
With the advent of the era of big data, the autonomous learning of students in English MOOC teaching based on big data analysis has also developed [1-2]. Student autonomous learning is the essence of education, the state of interaction between teachers and students, and one of the standards for measuring teaching quality. However, with the changes of the times and the reform of education, people have realized that the traditional single object, form and interactive content can no longer meet the requirements of today's English education and English education [3-4]. As a result, the voice on improving English teaching is getting louder and louder. Under this situation, more English MOOC teaching came into being [5-6]. At the same time, the motivation of students' autonomous learning in English MOOC teaching based on big data analysis has become increasingly prominent [7-8].

In the study of students' autonomous learning motivation in English MOOC teaching based on big data analysis, many scholars have conducted research on it and achieved good results. For example, Wei Q [9] believes that English MOOC teaching uses Internet materials to help students solve learning problems and Decision-making skills items. It is a teaching model based on construction-inquiry, which constructs an equal and harmonious collaborative learning environment for learners through modern information technology, and cultivates learners' sense of communication, collaboration and innovation. The famous American scholar Boldbaatar EA [10] believes that autonomous learning is very important and said that "the illiterate of the future is not a person who is illiterate, but a person who has not learned how to learn." He learned from the teaching of English MOOC based on big data analysis. The theoretical basis, characteristics, types, subjects, background analysis, goal design and teaching strategies of learning motivation are analyzed and explained one by one. Their in-depth exploration of interactive teaching theory and the vivid display of students' autonomous learning have laid the foundation stone for future scholars.

This article proposes some measures to stimulate students' learning motivation and improve their academic achievement. This article integrates the design of students' autonomous learning motivation into teaching tasks, so as to systematically improve the motivation of English MOOC teaching. This article explores the autonomous learning of students in traditional teaching and English MOOC teaching based on big data analysis.

2. Motivation of Students' Autonomous Learning in English MOOC Teaching Based on Big Data Analysis

2.1. Relationship between English MOOC Teaching and Students' Autonomous Learning Based on Big Data Analysis
(1) English MOOC teaching based on big data analysis is independent of students in stimulating students' learning motivation, developing self-concept and self-efficacy, guiding students to correct attribution, understanding learning styles, establishing positive learning attitudes and training learning strategies. Learning ability has a major impact. At the same time, the improvement of students' autonomous learning ability is conducive to the further development of English MOOC teaching based on big data analysis. Therefore, the relationship between the English MOOC teaching model based on big data analysis and autonomous learning ability can be described as complementary and common development.

(2) English MOOC teaching based on big data analysis advocates an equal and interactive teacher-student relationship. Teachers believe that students have the ability to encourage students to show themselves and give effective feedback in time to cultivate students' self-confidence and self-efficacy sense.

(3) The syllabus of English MOOC teaching based on big data analysis is based on the interaction between the original materials and supplementary materials suitable for the student's level based on demand analysis, so as to combine learning tasks with learning interests and increase The appeal of course content. This process is also inseparable from students participating in the design of course content, discussing the selection of courses with students (introducing social and cultural teaching content), and adjusting classroom procedures in a timely manner. 18 English MOOC based on big data
analysis between students and students, thereby enhancing learning. The content is interesting and strengthens students’ autonomy to participate in teaching.

4. One of the peculiarities of English MOOC teaching based on big data analysis lies in the level of interaction. This characteristic requires teachers to pay full attention to each student’s cognitive peculiarity, personality differences, and differences in teaching activities. Diversity of learning styles. Teachers should teach students in accordance with their aptitude so that students learn to learn.

5. The classroom of English MOOC teaching based on big data analysis is full of vitality and passion due to teacher-student interaction and student participation. Teachers adopt flexible classroom styles, pay attention to cultivate cultural empathy, and actively guide students to a reasonable return. Because it will affect students’ learning attitude and enthusiasm, and ultimately improve students’ motivation for autonomous learning.

2.2. Characteristics of Students’ Autonomous Learning

1. Initiative
   Students’ autonomous learning motivation is based on students’ initiative, from a negative attitude to a positive attitude, which not only cultivates students’ potential, but also improves their learning ability and also cultivates their sense of responsibility.

2. Independence
   The ability to learn independently is based on independence. The traditional education model is overly dependent on teachers, and the nature of autonomous learning ability is independent, which is its soul. It requires us to get rid of the traditional learning model and cultivate our own way of autonomous learning.

3. Individual differences
   Autonomous learning requires attention to individual differences. On the basis of accurate analysis of objective conditions and requirements, students independently select learning content, formulate their own specific learning goals, and conduct accurate self-evaluation on their own. Asynchronization makes many students more outstanding.

2.3. System Sampling Test Method

Select one data from all the data as the starting point, and extract the remaining sample units according to a certain interval. The specific method is as follows: Let N be the number of overall units, n be the sample size, and the sampling distance is S=N/n. Number the overall sample from 1 to N consecutively, first randomly select a number n1 from 1 to N as the first unit of the sample, and then select n1+S, n2+N, ... until the number of samples reaches the last one. The sampling method used in this article is regular, so it can well reflect the distribution of our survey objects. According to statistical principles, the larger the sample, the higher the accuracy of sampling. Let the probability of occurrence of A event be p, the number of occurrences of A in n repeated trials is m, when n is sufficiently large, approximately

\[
\frac{m - np}{np(1-p)} \sim N(0,1)
\]

(1)

Taking the confidence interval as 100%, there is

\[
-3 < \frac{m - np}{np(1-p)} < 3
\]

(2)

So the error is

\[
\frac{3np(1-p)}{n} = \frac{1}{np} - \frac{1}{n}
\]

(3)
It can be seen that the larger the \( n \), the smaller the error of \( m \), and the higher the accuracy of sampling.

3. Experimental Study of Students' Autonomous Learning Motivation in English MOOC Teaching Based on Big Data Analysis

3.1. Experimental Research Method
On the basis of using the literature research method, this subject conscientiously planned, practiced, recorded, recovered and filtered five important links. In the process of project research, filter while practicing, and constantly correct the research methods, so as to continuously adapt to and solve new problems and new situations that arise.

3.2. Reliability
High reliability indicates that the stability of the test is high, and vice versa, the stability of the test is low. It can be determined by the half method and internal consistency reliability. Split-half reliability divides the test questions of the scale into two halves in order of odd and even numbers, compares the original scores of the scale, and obtains the correlation coefficient \( (r) \). The size of the correlation coefficient indicates the degree of stability within the test. The half-reliability of this questionnaire is 0.8190, which indicates that the half-reliability of this test is relatively high. The alpha coefficient can be used for the internal consistency reliability. The inherent-consistency reliability of the questionnaire analyzed by spss11.0 is: attention level: \( \alpha = 0.7761 \); related level: \( \alpha = 0.8110 \); confidence level: \( \alpha = 0.7212 \); satisfaction level: \( \alpha = 0.7902 \); total scale: \( \alpha = 0.8317 \). It can be seen that the internal consistency reliability of this questionnaire is relatively high.

3.3. Hypothesis
In the teaching design of English courses and classroom teaching, the teaching mode of English MOOC teaching is used, and new teaching methods are used to improve students' knowledge, ability, and attitude and emotion towards English MOOC classes in order to achieve better results the teaching effect.

4. Experimental Research and Analysis of Students' Autonomous Learning Motivation in English MOOC Teaching Based on Big Data Analysis

4.1. Comparing Students' Autonomous Learning in Traditional Teaching and English MOOC Teaching
First, conduct a questionnaire survey on autonomous learning for students in two classes. The English bottom test is to accurately grasp the general situation of the current English proficiency of the students in the experimental class and the control class, whether the class difference is obvious, the distribution of the learning situation within the class, and the scores of the students after the exam. The experimental results are shown in Table 1.

Table 1. Average score

| Project          | Traditional class | Experimental class |
|------------------|-------------------|--------------------|
| Learning motivation | 19.30             | 25.50              |
| Learning strategy  | 15.69             | 15.84              |
| Learning attitude  | 23.82             | 24.21              |
| Learning method    | 15.53             | 15.62              |
According to the data obtained in Table 2, the difference between the experimental class and the traditional class in all aspects of autonomous learning before the experiment is not obvious. Also in order to be more objective and convincing, we still use the Z test. The results show that $|Z|$ is 0.26, 0.15, 0.35, 0.11, and 0.15, all $<Z_{0.05}=1.96$, $P>0.05$, so we can say that the students in the experimental class and the traditional class are basically derived from the same sample. The two are at the same level in learning, there is no significant difference. We designed 6 questions for the students’ learning motivation questionnaire, with a total of 30 points. The survey results showed that the experimental class was 25.5 and the traditional class was 19.30. Both of them did not reach 90% of the total score. Students in traditional classes have insufficient learning motivation.

### Table 2. Study Motivation

|                | Class | Experimental Class | Traditional Class |
|----------------|-------|--------------------|-------------------|
| N              | 45    | 104.13             | 89.80             |
| X              | 15.62 | 15.53              | 24.21             |
| S              | 29.24 | 15.84              | 19.3              |
| Z              | 23.82 | 15.93              | 25.5              |

4.2. Comparison of Students’ Autonomous Learning Motivation in Traditional Teaching and English MOOC Teaching

From a fundamental point of view, students’ learning motivation is interest. As long as they increase their interest in learning or increase their interest in teaching methods, students may have a strong learning motivation. Therefore, the first link in teaching is the creation of the situation to arouse the motivation of students to learn. So as to complete this experiment, the experimental results are shown in Table 2.
After testing, the experimental results are shown in Figure 2. The results show that there is a significant difference in the results of the two classes. We found that the standard deviation of the experimental class scores is smaller than that of the traditional class, which indicates that the overall level of the experimental class is relatively stable. The teaching mode of English MOOC teaching based on big data analysis is helpful to improve the overall students' learning motivation level. According to the experimental results, it has increased by 16.6%.

5. Conclusions

English MOOC teaching based on big data analysis has a good motivational effect in improving students' active learning motivation. Through English MOOC teaching based on big data analysis, students' autonomous learning motivation has been strengthened. In a modern society where the level of big data is constantly improving, learning to use English MOOC to solve problems truly reflects a person's independent learning quality. The continuous explosion of knowledge and the rapid development of big data make the values of education more and more tend to cultivate the development of students' thinking, interest and motivation. Knowledge is no longer the ultimate goal. Learning how to solve problems, or learning to maintain a strong motivation for learning, is the ultimate goal of education. The English MOOC teaching model based on big data analysis will definitely be widely used in classroom teaching in the near future.

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