

Monitoring and optimization of autonomous learning mode using English apps based on big data

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Abstract: English, as a language course, has strong practicality, which not only requires students to master basic knowledge and basic skills, but also to truly apply what they have learned to achieve the comprehensive language application ability of communication with language. The purpose of this paper is to monitor and optimize the autonomous learning mode of using English apps based on big data, test the learning effect of students, and improve their autonomous learning ability. Through the analysis of experimental data, we found that the self-learning mode based on monitoring and optimizing English apps based on big data can improve students' self-learning ability. The mode of online learning allows students to use their spare time to avoid the anxiety expressed in class, the shyness expressed in front of others, and the limitation of time and space. Therefore, the English autonomous learning mode enables students to better and more freely exert their language application ability under a moderately tense state.

1. Introduction

With the acceleration of the process of globalization and the continuous enhancement of China's national strength, our activities related to foreigners are increasing day by day, and speaking English is getting more and more attention [1]. At the same time of the comprehensive development of Internet +, the application of educational strategies in the autonomous learning mode of English apps should attract the attention of experts and trainers. Students can complete English learning training activities online, while deep collaborative knowledge and the ability to communicate with others lay a solid foundation for long-term development [2].

The development of science and technology has broadened the online learning methods, and the users of English apps are the core of the online development of education. With the intensification of market competition, the use of educational apps has become more extensive. Ghobadi S 'research aims to develop a mobile app to improve the ability of high-achieving students to learn English language vocabulary and to evaluate the application of the Best Student Learning English (ESLE), primarily from the perspective of high-achieving students and from the perspectives of multiple experts. ESLE apps are interactive mobile games developed using a cross-platform and digital educational design model. In the first phase of the study, 40 students with different intellectual and

physical disabilities were selected and randomly assigned to the experimental and control groups (20 students in each group); They are all students in grades seven to nine in middle school. School. The experimental group received vocabulary instruction through the ELSE application, while the control group received conventional instruction [3]. Alahmad M In the era of modernization and technology, great progress has been made here in various fields. With the progress of human understanding, there have been many new developments, and these innovations have contributed to human development. Because of this modern technology and the advent of the Internet, the field of education is going through a lot of changes. The usual whiteboard books are being replaced by smart boards and e-books. In addition, the learning behavior of learners who rely more on modern technology has changed. Education does not depend on teachers. While teaching English, teachers are using current technology to bring new technologies into the classroom, and they are changing the methods and techniques of teaching English to EFL/ESL learners. Some teachers even encourage their learners in EFL/ESL classes to use mobile phones to simplify learning. This paper focuses on the use of mobile phones in class. In addition, the advantages of using mobile applications for learners are discussed [4]. The application of big data processing technology to organize and summarize massive data can effectively utilize the preferences and learning styles of English APP users.

This paper studies the monitoring and optimization of big data on English apps, explores the meaning and characteristics of big data and apps, and finds out through questionnaire survey that the autonomous learning mode of English apps can effectively improve students' learning ability, and the key to improvement lies in students' attitude towards learning English.

2. Research on the monitoring and optimization of autonomous learning mode using English APP based on big data

2.1 Big data

(1) The meaning of big data

There is no uniform standard for data analysis, but research by many experts has made this theory more specific, most notably the National Institute of Standards and Technology and the McKinsey Global Institute [5]. The comparison between big data technology and traditional technology in data collection and analysis shows the powerful potential of big data. From the value of big data, followed by big value and rich, and the real value is reflected in the strong data analysis ability, that is, the value generated by the data analysis results.

(2) Characteristics of big data

No matter what definition is provided by relevant studies, the characteristics of big data such as large storage capacity, fast analysis speed, and data distribution are uniformly maintained [6]. First, the amount of data stored is enormous. The database is represented in two places, one is the amount of underlying data, and the other is the internal capacity required for data processing. Secondly, traditional data processing is based on data analysis, while big data is more comprehensive and complete in data processing. Second, these types of data are very rich. Large data sets can be edited and analyzed not only for text, but also for audio, video, web and other formats. Then, data analysis is accurate and fast. Big Data relies on modern computer technology to determine the accuracy and timeliness of data, especially systems that process big data, with more significant advantages. Finally, the amount of data is large and the space is large. The significance of data itself is not great, and the rules and surprises that appear after data analysis are important indicators of big data [7].

(3) Data optimization

Lost data refers to data values that are included in the data set due to human error or device-related reasons during data collection or transmission [8]. Cases of data loss often occur in remote health monitoring systems due to incorrect formatting or incorrect data transmission. Therefore, multiple correction method can be used to identify various dependent variables and independent variables, identify multiple dependent variables and independent variables in a complete database, and then construct the corresponding linear regression model and map the data accordingly. Multiple regression method needs to calculate the model lifetime and standard error, build a specific data system, and finally obtain the average value of the model lifetime for comparison [9].

Data quality checks are primarily about identifying lost data, external data, and backup data. Widget data are some of the data concentrations that differ significantly from the rest of the world. There are many factors that can cause data inconsistencies, so there are many formats that can be applied to data samples that follow a multivariate normal distribution. Missing data in distribution.

2.2 English APP

Application, the full name of APP course, refers to the software program that realizes human-computer interaction with the help of portable peripherals (mobile phones, laptops, etc.). An educational APP is a program that helps students learn. At present, the education industry has not given a clear definition of APP education, and different people have different interpretations. Many scholars believe that APP courses are intelligent terminal applications developed for writing. APP teaching syllabus is the product of the combination of information technology and curriculum, and education has a narrow understanding of specific teaching places. Specific educational content and specific teaching methods. Teaching methods are the same [10].

The English APP in this study describes a narrow definition of an APP course as one designed and developed to achieve a specific learning curve. According to the characteristics and functions of the course, APP is defined as an application-type teaching goal that can be realized in the mobile terminal system or program by developing specific training sites and training content, displaying specific training strategies [11]. Learning application mainly refers to the use of network technology, mobile technology, etc., according to the specific teaching site and training content, the use of strategic planning and methods to demonstrate teaching functions and training processes. Education APP is a new mobile learning resource developed with the emergence of intelligent mobile terminals. At present, it is generally defined as a third-party application software that runs on a mobile intelligent website, provides known services, and provides support for learners.

3. Investigation and research on monitoring and optimization of autonomous learning mode using English APP based on big data

3.1 Research object:

The educational practice was carried out in a school in M city. Classes 1 and 2 of English majors were taken as experimental subjects, 55 students of Class 1 of English majors were taken as experimental classes, and 56 students of Class 2 of English majors were taken as control classes, as shown in Table 1 below:

Table 1. Number of experimental class and control class

Mold	Experimental class	Control class
Class	Class 1	Class 2
Number of people	55	56

3.2 Research method

An overview of the teaching experiment, and quantitative and qualitative research on its implementation effect by means of questionnaire survey. The questionnaire survey includes two scales: students' autonomous learning ability and students' English learning attitude. Through SPSS22.0 data analysis of the questionnaire and qualitative research on interviews, this paper explores the effect of this teaching mode on students' teaching effect. The T-test formula used in this paper is as follows:

$$t = \frac{\bar{X} - \mu}{\frac{\sigma X}{\sqrt{n}}} \quad (1)$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2} \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} \quad (2)$$

Where, formula (1) is a single population test, \bar{x} is the sample average, s is the sample standard deviation, and n is the number of samples. Formula (2) is a double population test.

4. Analysis and research on monitoring and optimization of autonomous learning mode using English APP based on big data

4.1 English learning attitude analysis of experimental class and control class

After the application of the autonomous learning mode based on English APP, students' learning attitude has a great impact on the monitoring results, and the excellent learning attitude determines whether students can improve their learning effect under the autonomous learning mode. In order to study the effect of students' English learning attitude in the experimental class and the control class based on the self-learning mode of English APP, 120 copies of the post-test questionnaire of students' English learning attitude scale were distributed to the experimental class and the control class, 110 copies were collected, and independent samples of the experimental class 'English learning attitude were tested, as shown in Figure 1:

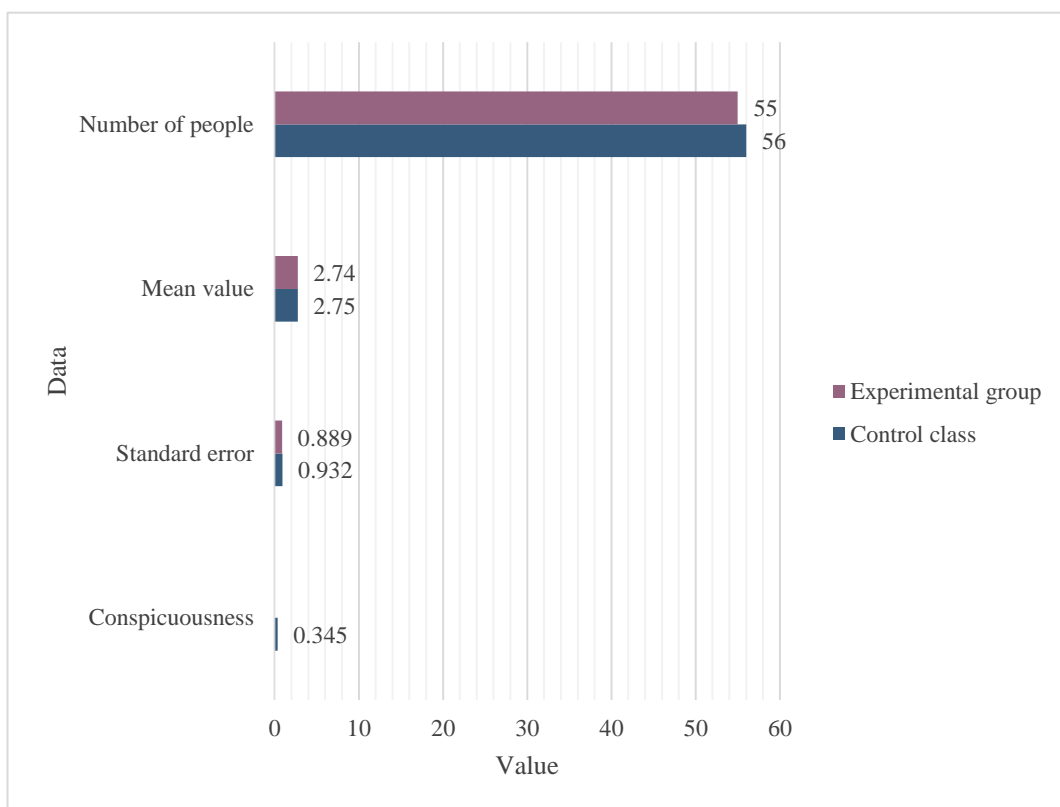


Figure 1. T-test of independent samples before testing learning attitude in experimental class and control class

The results showed that the significance P of the test sample was greater than 0.1, indicating that there was no significant difference in English learning attitude between the experimental group and the control group. In addition, the autonomous learning mode of English APP can promote students' understanding of English situations, help them simplify the difficulty of English learning, and enable students to experience the charm of English culture on the basis of understanding. The differences between Chinese and English will create a fresh feeling for students, and also promote students' exploration and learning of English to a certain extent. So as to improve students' interest in learning English.

4.2 Analysis of autonomous learning ability of experimental class and control class

Independent learning ability first pays attention to students' understanding of the language, whether students have absorbed the understanding of the knowledge, and at the same time tests whether students use English thinking to express. In order to monitor the effect of autonomous learning mode, 120 questionnaires on students' autonomous learning ability in English APP were distributed to Classes 1 and 2 of English majors, and 110 were recovered. After analyzing the obtained data, it is shown in Figure 2:

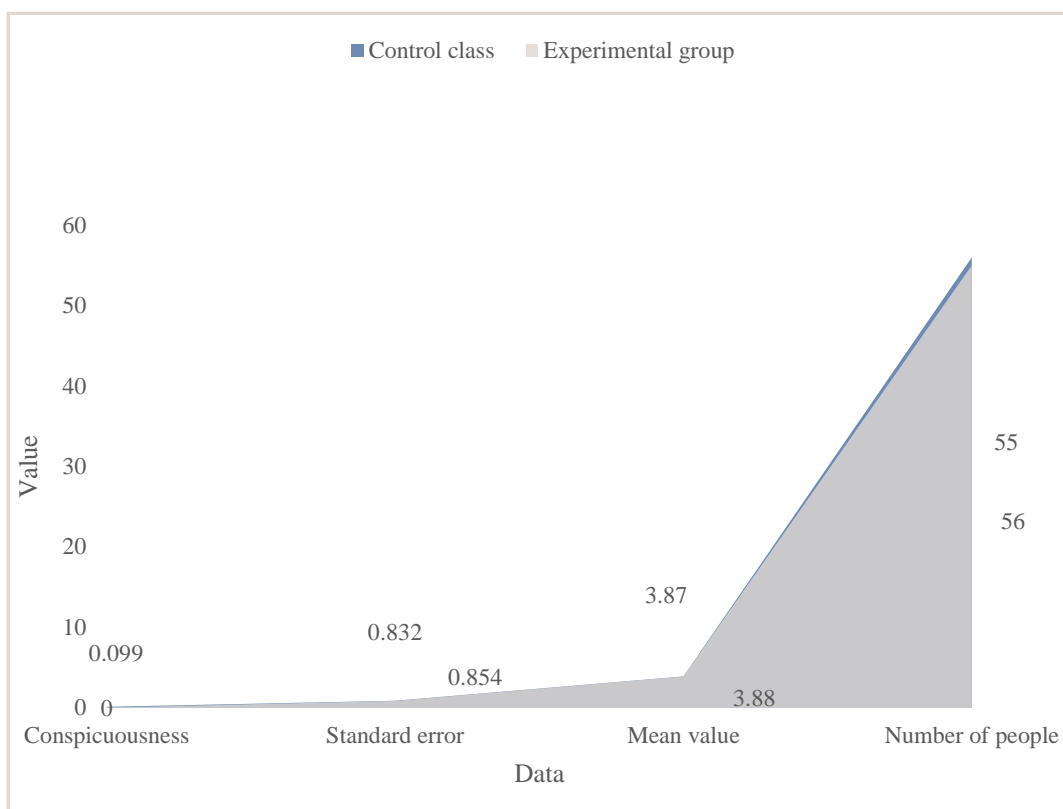


Figure 2. T-test of independent samples before testing independent learning ability in experimental class and control class

The results show that the significance of the sample is less than 0.1 in the analysis of the questionnaire of the students' autonomous ability in the experimental class, indicating that the autonomous learning mode based on English APP has significantly improved the students' autonomous learning ability. Since students are in the process of language development and are good at imitation learning, English APP provides students with a good environment to imitate original English, which will help improve students' English pronunciation and intonation. In the process of independent learning, students are provided with a relatively complete language situation and a top-down approach, so that students can grasp the meaning expressed in the dialogue as a whole, and through the connection and use of English and Chinese, the improvement of students' independent learning ability is promoted.

5. Conclusions

Learning English is a long process. The application of APP English autonomous learning mode in big data can improve students' active teaching behavior, play a positive role in improving students' autonomous learning ability, and improve students' English expression and use ability. In order to test the practical value of this model, data monitoring and optimization are implemented in the framework of English language application. The APP platform automatically collects a large amount of student learning data. Due to insufficient data and other reasons, students can not study learning habits through a large number of data analysis, so they can not make good use of a large number of data. It is expected that in future studies, existing learning data can be fully utilized to fully tap into students. There are still many shortcomings in this paper, but it is hoped that it can expand students' ideas of learning English, let more students actively participate in the teaching

process, and try their best to let students know new knowledge when they need to know, so as to stimulate the internal motivation and arouse their interest in learning.

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