Cloud Service-Based Online Self-learning Platform for College English Multimedia Courses

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Abstract. Because the traditional college English multimedia course network independent learning platform has the problems of slow response time and low student satisfaction, a cloud service based College English multimedia course network independent learning platform is designed. Hardware part: simulate the maximum frequency of input signal and design a complete power on reset (POR) and power off reset (PDR) circuit; Software part: increase the investment in multimedia network teaching, improve the management structure of College English multimedia courses, take the Internet as the main carrier, build a network independent learning model, and optimize the software functions of the platform by using cloud services. Experimental results: the average response time of the College English multimedia course network autonomous learning platform in this paper and the other two autonomous learning platforms are 8.464 s, 13.276 s and 13.697 s respectively, which shows that the application effect of the College English multimedia course network autonomous learning platform is better and the satisfaction of students is improved after making full use of the cloud service technology.

Keywords: Cloud service · College English · Multimedia course · Online self-learning · Classroom teaching · Teaching quality

1 Introduction

Multimedia network autonomous learning has caused profound changes in traditional education methods. In the past traditional teaching activities, teachers as the main body of teaching activities, the main task is to impart knowledge to students. Today, as a new helper, the acquisition of knowledge is constructed by students according to their own cognitive structure and existing knowledge structure. In educational practice at all levels, people pay more and more attention to the main role of learners, and more and more attention is paid to the cultivation of students' independent thinking ability and innovative spirit. Allowing learners to conduct autonomous learning through the network has become an important means of cultivating students' comprehensive quality. The focus of the online self-learning platform for college English multimedia courses is the close

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integration of education and technology [1, 2]. While the application of technology has brought about changes in educational facilities and teaching methods, the corresponding teaching methods and teaching models will also be innovated, and these reforms will inevitably lead to changes in educational thinking and educational concepts. With the continuous expansion of the scale of higher education in my country, the level of students has also undergone major changes. Students have more individuality. Traditional elite education can no longer meet the needs of students. In college English teaching, traditional classroom teaching still dominates status, teachers dominate the classroom, and students learn passively. The essence of technology application is to serve human beings, and its role is to assist human information organs to complete the acquisition, storage, processing, publishing and expression of human information. Computer technology, multimedia technology, virtual reality technology and the diversity of information carriers enable learners to overcome time and space barriers and independently arrange their own learning time and speed. Therefore, foreign language autonomous learning has become a hot research topic in foreign language education circles at home and abroad in recent years. From the learner's point of view, with the changes in learning objectives, learning content and learning form, learners can no longer learn completely in accordance with the traditional teaching mode, and can arrange their own learning flexibly and autonomously. Radical change. Multimedia course network self-learning will open up a global knowledge dissemination channel, realize mutual dialogue and exchange between learners and teachers in different regions, not only can improve the efficiency of education, but also provide learners with a relaxed and rich content. Learning environment. From the perspective of educators, teachers are no longer the leaders of learning, but truly become participants and instructors of learning. Information technology, represented by network technology, will have a profound impact on traditional teaching modes, teaching content and teaching methods. Influence. The application of network multimedia teaching has changed the teaching status of teachers in the past, advocated the teaching ideas of students' autonomous learning and individualized learning, and made the teaching process more colorful. Therefore, in addition to the innovation of educational ideas, educational methods and teaching methods, the multimedia course network autonomous learning is more important to bring about changes in educational and teaching models, and it will certainly be a revolutionary change.

Most of the traditional methods use mobile terminals and cluster analysis to design the College English multimedia course network independent learning platform, but the self-learning platform based on mobile terminals has low student satisfaction, and the operation of the self-learning platform based on cluster analysis is complex, resulting in a long response time of the platform. Therefore, this paper designs a web-based autonomous learning platform for College English Multimedia Courses Based on cloud services, and verifies the effectiveness of the platform designed in this paper through simulation experiments, which solves the problems existing in the traditional platform.

2 The Hardware Design of the Online Self-learning Platform for College English Multimedia Courses

According to the configuration requirements of the self-learning platform, the hardware of the network self-learning platform for college English multimedia courses is designed.

The power supply scheme of the hardware: Vdd, the voltage range is 2.0–6 V: the external power supply is provided through the Vdd pin for I/0 and internal voltage regulator. Vssa and Vdda, voltage range is 2.0 Femto. 6 V: External analog voltage input for ADC, reset module, RC and PLL, within Vdd range (ADC is limited to 2.4 V), Vssa and Vdda must be connected accordingly to Vss and Vdd. In high-speed data acquisition systems, parameters such as phase noise, phase jitter, phase error, frequency error, and signal-to-noise ratio of the sampling clock are critical. Because the jitter of the sampling clock will lead to sampling at unequal intervals, resulting in the deviation between the output of the analog-to-digital conversion circuit and the theoretical sampling value. Vbat, the voltage range is 1.8–3.6 V: when Vdd is invalid, power supply for RTC, external 32 kHz crystal oscillator and backup register (through power switching). The STM32 series of products continue the energy-saving and consumption-reducing features of the ARM Cortex-M3 core and support high-precision power management functions. When the sampling signal is still processed according to the nominal equal interval, noise caused by sampling jitter error is bound to be introduced, resulting in a decrease in the ADC output signal-to-noise ratio, which in turn has a certain impact on the detection performance of the measured signal. The voltage regulator has 3 modes of operation: Main (MR), Low Power (LPR) and Power-down. When the reset circuit works, the minimum power consumption is 2μA in standby mode, and in normal operation mode at 72 MHz, the STM32's The current consumption is as low as 27 mA. A complete power-on reset (POR) and power-down reset (PDR) circuit is designed on the circuit device. The resolution of the analog-to-digital converter 1VIXT2001 selected in this topic is 8, and the voltage peak value of the analog input signal is equal to The full-scale voltage range is 700 mVpp, the maximum frequency of the analog input signal is 200 MHz (−3 dB bandwidth), and the maximum jitter is estimated to be about 3 ps. This circuit is always valid to ensure that when starting from 2 V or falling to 2 V Some necessary operations are performed. Among them, the hardware phase-locked loop structure is shown in Fig. 1:

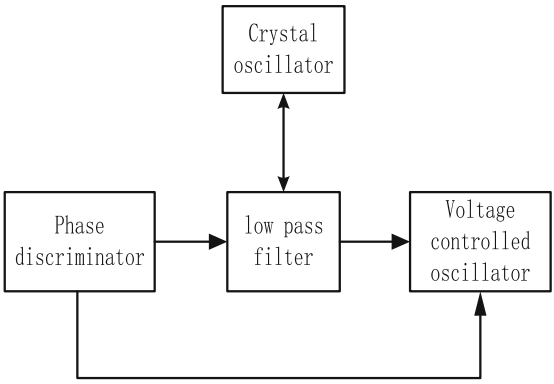

Fig. 1. Hardware phase-locked loop structure

As can be seen from Fig. 1, the hardware phase-locked loop structure includes: a crystal oscillator, a loop low-pass filter, and a voltage-controlled oscillator. When Vdd is below a certain lower limit Vpor/pdr, no external reset circuit is required and the device can remain in reset mode. In addition, STM32 also has an embedded programmable voltage detector (PVD), PVD is used to detect Vdd, and compared with Vpvd limit. An interrupt is generated when Vdd is lower than Vpvd or Vdd is greater than Vpvd. Analog Devices' clock generation chip AD9517–3 has a sub-picosecond output jitter, which meets the design requirements. The AD9517–3 significantly enhances ADC data conversion performance with sub-picosecond low jitter performance and low phase noise. It can provide multiple clock outputs, and integrates an on-chip phase-locked loop PLL and a voltage-controlled oscillator VCO, and its tuning frequency range is 1.75 GHz–2.25 GHz. The interrupt service routine can generate a warning message or put the MCU into a safe state, and the PVD is enabled by software. To sum up, we choose the power supply chip AP1117 provided by Anachip, which is a low-dropout (1.4 V) positive voltage regulator, which can provide a maximum output current of 1 A, built-in overheating and overcurrent protection, and has a fixed output voltage of 1.5 V, 1.8 V, 2.5 V, 3.3 V and 5 V, select the fixed 3.3 V voltage output. At the same time, it also has an external VCO with a frequency of up to 2.4 GHz, which is convenient for the expansion of the external clock of the board.

3 Software Design of Online Self-learning Platform for College English Multimedia Courses

3.1 Improve the Management Structure of College English Multimedia Courses

There are many departments involved in the implementation of the multimedia network teaching model, such as the Office of Academic Affairs, the Office of Planning and Finance, the Office of State-owned Assets Management, the Office of Logistics Management, the Modern Educational Technology and Information Management Center, the Electric Classroom, and the Language Laboratory. The research and development of general English (commonly known as college English textbooks) must be differentiated in terms of language difficulty, so as to adapt to the choice of students with different foundations. The selection of materials should be as close to the actual life of students as possible, combined with their life or learning experience, to make language learning more life-like and make language learning truly meaningful. Teachers should carefully organize and implement multimedia classroom teaching to improve teaching effect [3, 4]. At the same time, efforts are made to cultivate students' self-management ability and improve their independent learning ability using multimedia network. On the basis of the above description, the basic structure of online self-learning of college English multimedia courses is obtained, as shown in Fig. 2:

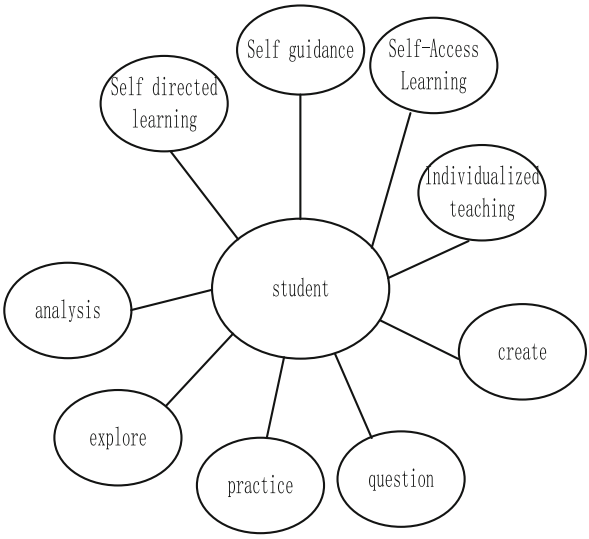

Fig. 2. Basic architecture of autonomous learning

It can be seen from Fig. 2 that autonomous learning is a modern learning mode corresponding to traditional receptive learning. Students are the main body of learning. Students achieve their learning goals through self-guidance, self-directed learning, self-directed learning and personalized teaching through independent analysis, exploration, practice, questioning, creation and other methods. Advocate students to actively participate, be willing to explore and be diligent in doing things, and cultivate students' ability to collect and process information, acquire new knowledge, analyze and solve problems, and communicate and cooperate. According to the characteristics of the language, the learning of English requires continuous intensive training, and the improvement of a student's ability is proportional to the intensity of his training. Compared with online teaching, traditional classroom teaching is also affected by factors such as the number of students, teaching time and teachers' energy, and intensive training in this environment is relatively insufficient. The selection of materials should be as short as possible, concise in content, and strong in language demonstration. This will not only help improve the efficiency of teaching and learning, but also help protect students' enthusiasm for learning. There are many factors that determine the quality of teaching, among which, teaching management is one of the most basic and most important factors. Multimedia network technology has had an unprecedented and profound impact on college English teaching, and also brought new opportunities and challenges to college English teaching management. The emergence of network teaching software can make up for this deficiency, overcome the problem that the traditional classroom teaching cannot increase the training intensity and training time of listening and speaking, and the training of students can also be carried out anytime, anywhere. Increase investment in multimedia online teaching, build independent learning centers and online learning platforms to recruit senior professionals who are proficient in computer network information technology, serve as managers of independent learning centers, and promptly eliminate technical problems

in multimedia online teaching. “Guardian”. English learning needs to be placed in a certain situation or environment, and its main purpose is to express one’s thoughts and describe facts in language, so as to achieve the purpose of cultivating students’ abilities and developing students’ intelligence. The two most typical situations in the foreign language environment under the traditional classroom model are: shy and introverted students cannot participate in the real language environment, while those students who are lively and generous, and have a strong desire to express their language application ability will appear. More and more skilled. Therefore, while introducing modern teaching methods, in order to ensure the smooth development of multimedia network teaching, it is necessary to strengthen the training of teachers and students in computer operation skills and multimedia network knowledge, so that they can master the basic knowledge of computers and networks, and be proficient in using multimedia teaching. Software, campus network and Internet. The use of the existing network technology to establish a virtual language environment can make up for the deficiencies of the traditional language teaching environment, and this environment will be beneficial to the cultivation of all students’ listening, speaking and expression skills.

3.2 Build a Network Autonomous Learning Model

The main feature of English autonomous learning is that learners start from the initial goal setting, progress formulation, strategy selection, process adjustment, control and remediation, and then to the evaluation and reflection of the results. All processes will be independently chosen and decided by the learners. The learners have high enthusiasm in the English learning process, always have a strong interest in English learning, are full of confidence in making progress, and can obtain positive emotional experience from English communication activities.. English for Special Purposes itself includes three different levels: workplace English, academic English and professional English. Although it is difficult to clearly distinguish some content, the purpose and occasion of language use should always be kept in mind during the compilation of textbooks. In this way, vocabulary, stylistic and language difficulty will naturally be distinguished. From a broad perspective, the online learning environment refers to the continuous situation and conditions that online learners rely on in the process of learning activities. It not only refers to the material conditions that support the learning process, but also includes non-material conditions such as learning strategies, interpersonal relationships, learning psychology and learning atmosphere. Whether it is workplace English, academic English, or professional English, it is temporarily unable to fully meet the actual needs of teaching, because there are too many industries, and the number of disciplines and majors is also very surprising. From a narrow point of view, the online learning environment refers to the continuous situation, conditions and psychological factors that online learners rely on in the process of learning activities in modern online education and open education, with the Internet as the main carrier. Self-directed learning is not only manifested in the technical support at the material level, but also in the broader and deepest spiritual impact on learners. The main process of online self-learning of college English multimedia courses is shown in Fig. 3:

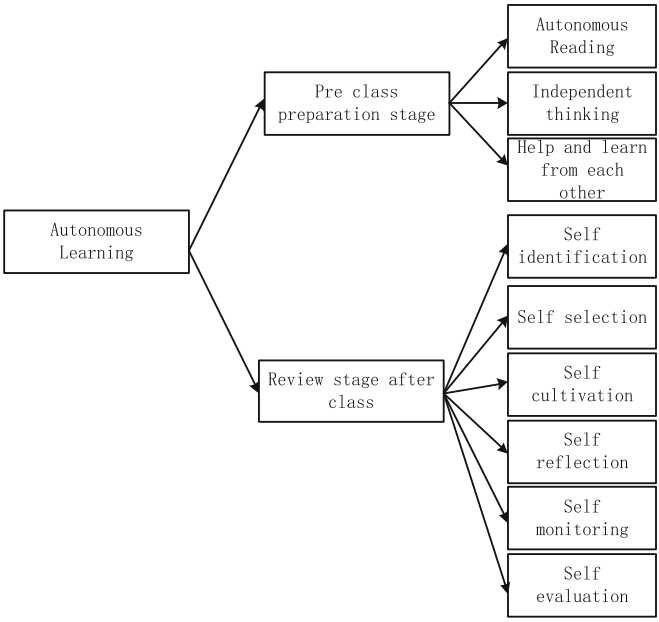

Fig. 3. The main process of autonomous learning

As can be seen from Fig. 3, the basic process of autonomous learning is divided into two main stages. The first major stage is the pre class preparation stage. The basic idea of this stage is "don't teach what you can learn", and the basic principle is "read independently, think independently, and help and learn from each other". I call this stage "pre class". The basic process of "pre class": learning guidance and cooperation. The second main stage is the review stage after class. The main processes are: self identification, self selection, self cultivation, self reflection, self-monitoring and self-evaluation. In addition, academic English can be considered to be compiled with reference to the subject, and it does not have to be subdivided into majors. Because the main purpose of academic English is to train learners' academic oral communication skills and academic written communication skills, the emphasis is not on professional knowledge, but on language skills based on professional knowledge [5]. The compilation of English for Special Purposes should be completed with the help of the full cooperation of language textbook compilation experts, industry experts and subject field experts. Only by integrating the expertise and wisdom of all parties can the quality of textbooks be basically guaranteed. Transmission of information through multimedia pictures, texts, sounds, images and other forms makes teaching more three-dimensional, vivid and vivid, and this effect helps to stimulate learners' interest in learning and improve learning efficiency.

3.3 Cloud Service Optimization Platform Software Functions

Cloud services are developed on the basis of a series of traditional technologies such as grid computing, distributed systems, P2P, and virtualization, and are a new type of

platform for sharing information infrastructure [6, 7]. On the basis of cloud computing, the expression formula of the trust computing model of the network platform is obtained:

$$G_{(t)} = \frac{\beta_{t-1} + \frac{1}{\phi}(\beta_{t-1})}{\sum (\beta_t)^{other}} \tag{1}$$

In formula (1), β represents the user's reputation, ϕ represents the number of transactions, and t represents the feedback score for the user's reputation. The optimization of online self-learning in college English multimedia courses is not the optimization without constraints, but the optimization with constraints. In practice, it should be noted that the purpose of network teaching is only to achieve the optimization of teaching effect, not to network for network. The college English course is a course based on knowledge learning and language communication, and cannot use the Internet to completely replace the situational communication in the real environment. The emergence of network platforms has promoted learners' interest in learning. Different from traditional classrooms, in the online environment, learners can choose the right time and study method according to their needs to study "as they want". Therefore, the use of the Internet to carry out independent study of college English should pay attention to the principle of optimization in appropriate aspects. Optimizing the combination and expansion of course knowledge points and network teaching resources cannot be separated from the syllabus of the course to expand the content of network resources without boundaries, which will make learners deviate from the goal of autonomous learning. Whether learning achieves a certain effect depends on the learner's own self-control. Curriculum setting serves teaching goals. In school education, teaching goals are mainly achieved through teaching activities with the help of teaching materials. Therefore, the compilation, selection and use of teaching materials should be carried out closely around teaching goals and learning purposes. Optimize the proportional structure of listening, speaking, reading, writing and other related content. The network is not omnipotent. It is necessary to give full play to the advantages of network technology and multimedia technology, and appropriately increase the parts of listening, speaking and reading. Optimizing the cultivation of autonomous learning ability, the main purpose of using the network to carry out autonomous learning is to cultivate students' autonomous learning ability, and the network content cannot be limited to the simple repetition and reproduction of the basic content of the course, but must be open to a certain extent. In a broad sense, general English, general education English and English for special purposes in the curriculum are set up to achieve different teaching goals and meet the needs of different learners. Secondly, various information tools also play a significant role in cultivating learners' autonomous learning ability and providing learning strategies. To optimize the influence of autonomous learning on students' emotions and emotions in the network environment, it is required that the ease of use, the beauty of the interface and the vividness of the content should be considered when developing the network autonomous learning platform, so as not to affect the students' interest in learning. To optimize the simulation of the situation, the use of the network to learn independently is online and real-time interactive, and it is necessary to design language communication situations that meet the needs of students. Optimize teachers' guidance on learning strategies for students to use the Internet for autonomous learning. A good learning strategy can promote students'

learning, but an unsuitable learning strategy will affect students' autonomous learning, and will damage students' confidence in using the Internet to carry out autonomous learning. These information tools include: intelligent tutor system, expert system, virtual classroom, multimedia teaching software, BBS, chat room and network log and a series of countless practical tools. On the basis of formula (1), the local trust value after normalization is obtained:

$$L = \frac{\max(Lmn, 0)}{\sum_{n=1} (Lmn, 0)} \times \frac{1}{\phi} \tag{2}$$

In formula (2), L represents the trust value of a node in the network platform, m, n represents the total trust value and local trust value of the node, and ϕ has the same meaning as formula (1). After multiple iterations, the global trust value of the node is obtained as follows:

$$\eta^{(\gamma-1)} = \frac{(\gamma + L)}{2} + \sigma \tag{3}$$

In formula (3), γ represents the global trust value vector, σ represents a constant less than 1, and L has the same meaning as formula (2). If you want to optimize the space and time of teacher-student communication and student-student communication, it is necessary to design a smooth and functional communication platform on the network platform, and teachers are required to have enough online time to facilitate communication with students and problems between students. Discuss, realize the complementarity and mutual assistance between students and teachers, and between students and students. Under the historical framework of the development of English literature, the selection of representative works will help students understand the influence and shaping of these sources on the British and American literary traditions, and will also help students understand the literary characteristics or the spirit of the times in a certain historical period. In the developed information society, there are still many available tools waiting for learners to use and develop. The main medium of autonomous learning in the network environment is realized through the network platform [8–10]. The construction of the network learning platform is an important part of the smooth progress of autonomous learning. The quality of platform design depends largely on whether the platform's architecture is scientific and reasonable, because the architecture is often the basis of a network education platform, and it has a decisive role in the scope, function and performance of the system.

4 Platform Application Test

4.1 Test Preparation

According to the platform test needs, set the test preparation. Select PHP (PHP Hypertext Preprocessor) as the scripting language running on the server side. The PHP code can be interpreted and converted into standard HTML script on the server side and returned to the browser. In addition, this experiment uses the VKS (Vocabulary Knowledge Scale) test designed by Paribakht and Wesche as a pre-test to measure students' familiarity

with words. Database access is performed using the database interface provided by PHP to access the MySQL database. The model itself is developed under the Linux system based on the Apache + MySQL + PHP environment, which is also well supported under the Windows platform, so the interactive teaching plug-in is developed using the above development environment. Except for the VKS test, all data were analyzed by SPSS.

4.2 Test Results

In order to test the application effect of the network self-learning platform for college English multimedia courses designed this time, a comparative test is carried out. Select the online self-learning platform for college English multimedia courses based on mobile terminals, and the network self-learning platform for college English multimedia courses based on cluster analysis, and conduct a comparative test with the online self-learning platform for college English multimedia courses in the text. The response times of the three platforms were tested under the conditions of different concurrent users. The test results are shown in Tables 1, 2, 3 and 4:

Table 1. Response time of the platform with 80 concurrent users (s)

Number of experiments	Mobile terminal-based online self-learning platform for college English multimedia courses	A network autonomous learning platform for college English multimedia courses based on cluster analysis	The online self-learning platform for college English multimedia courses
1	1.202	1.411	0.548
2	1.366	1.106	0.631
3	1.058	2.113	0.489
4	1.694	1.257	0.512
5	1.588	1.163	0.648
6	1.721	1.082	0.571
7	2.019	1.201	0.529
8	1.685	1.665	0.488
9	1.346	2.132	0.643
10	2.067	1.541	0.514
11	2.158	2.203	0.499
12	1.926	1.337	0.562
13	1.407	1.246	0.473
14	1.112	1.046	0.526
15	1.055	1.515	0.847

According to Table 1, the average response time of the College English multimedia course network autonomous learning platform in this paper and the other two autonomous learning platforms are 0.565 s, 1.560 s and 1.468 s respectively.

Table 2. Response time of the platform with 160 concurrent users (s)

Number of experiments	Mobile terminal-based online self-learning platform for college English multimedia courses	A network autonomous learning platform for college English multimedia courses based on cluster analysis	The online self-learning platform for college English multimedia courses
1	4.615	5.229	2.615
2	5.166	5.131	2.014
3	4.915	4.825	2.546
4	5.613	5.009	1.698
5	4.845	4.758	2.162
6	5.221	4.615	2.337
7	4.965	2.337	2.151
8	5.847	5.022	1.649
9	6.032	6.948	2.013
10	5.144	5.166	1.455
11	6.209	4.209	1.331
12	5.777	5.223	2.021
13	4.949	4.674	2.005
14	5.122	5.199	1.142
15	4.969	4.848	2.131

According to Table 2, the average response times of the online self-learning platform for college English multimedia courses and the other two self-learning platforms are: 1.951 s, 5.293 s, and 4.880 s, respectively.

Table 3. Response time of the platform with 240 concurrent users (s)

Number of experiments	Mobile terminal-based online self-learning platform for college English multimedia courses	A network autonomous learning platform for college English multimedia courses based on cluster analysis	The online self-learning platform for college English multimedia courses
1	10.615	13.152	8.145
2	11.289	12.748	7.948
3	10.314	11.646	8.616
4	12.545	13.825	8.553
5	11.722	13.466	7.498
6	11.649	12.899	8.022
7	12.031	13.285	7.645
8	11.088	13.407	8.113
9	12.615	12.516	7.468
10	11.714	12.884	8.319
11	12.166	13.615	7.255
12	11.361	12.711	7.316
13	12.058	13.060	8.005
14	11.999	12.388	8.198
15	15.246	13.051	7.554

According to Table 3, the average response time of the online self-learning platform for college English multimedia courses and the other two self-learning platforms are: 7.910 s, 11.894 s, and 12.978 s, respectively.

Table 4. Response time of the platform with 320 concurrent users (s)

Number of experiments	Mobile terminal-based online self-learning platform for college English multimedia courses	A network autonomous learning platform for college English multimedia courses based on cluster analysis	The online self-learning platform for college English multimedia courses
1	19.646	21.505	15.202
2	20.105	22.114	14.613
3	18.443	23.619	15.812
4	19.219	22.502	14.203

(*continued*)

Table 4. (*continued*)

Number of experiments	Mobile terminal-based online self-learning platform for college English multimedia courses	A network autonomous learning platform for college English multimedia courses based on cluster analysis	The online self-learning platform for college English multimedia courses
5	18.533	23.121	14.719
6	17.409	22.599	15.922
7	19.914	23.466	16.345
8	18.205	22.108	15.848
9	19.633	23.648	13.747
10	21.011	21.554	12.025
11	22.492	23.606	12.994
12	20.001	22.516	11.633
13	21.758	23.849	12.055
14	22.166	22.644	13.448
15	21.025	21.336	12.504

According to Table 4, the average response time of the online self-learning platform for college English multimedia courses and the other two self-learning platforms are: 14.071 s, 19.971 s, and 22.679 s, respectively.

Table 5. Response time of the platform with 400 concurrent users (s)

Number of experiments	Mobile terminal-based online self-learning platform for college English multimedia courses	A network autonomous learning platform for college English multimedia courses based on cluster analysis	The online self-learning platform for college English multimedia courses
1	26.316	29.484	16.212
2	25.818	28.515	17.301
3	26.144	27.616	15.718
4	27.911	26.335	18.966
5	26.533	26.108	15.844
6	27.482	25.319	17.606

(*continued*)

Table 5. (*continued*)

Number of experiments	Mobile terminal-based online self-learning platform for college English multimedia courses	A network autonomous learning platform for college English multimedia courses based on cluster analysis	The online self-learning platform for college English multimedia courses
7	26.901	26.405	16.877
8	28.516	26.331	17.901
9	29.311	25.818	19.362
10	27.503	25.088	18.011
11	28.519	26.316	18.206
12	29.646	25.822	19.115
13	28.533	26.915	18.612
14	29.417	26.144	19.344
15	26.410	25.013	18.227

According to Table 5, the average response time of the College English multimedia course network autonomous learning platform in this paper and the other two autonomous learning platforms are 17.820 s, 27.664 s and 26.482 s respectively.

To sum up, when the number of concurrent users gradually increases, the response time of the platform also increases. However, no matter how the number of concurrent users increases, the response time of the platform designed in this paper is still faster than that of the other two traditional platforms, which shows that the network independent learning platform of College English multimedia courses designed in this paper runs more efficiently.

In order to further verify the effectiveness of this platform, the College English multimedia course network autonomous learning platform, the mobile terminal based College English multimedia course network autonomous learning platform and the cluster analysis based College English multimedia course network autonomous learning platform designed in this paper are used to carry out a comparative analysis of student satisfaction. The comparison results are shown in Fig. 4.

According to Fig. 4, the student satisfaction of the College English multimedia course network independent learning platform designed in this paper can reach 99%, which is higher than that of the other two platforms.

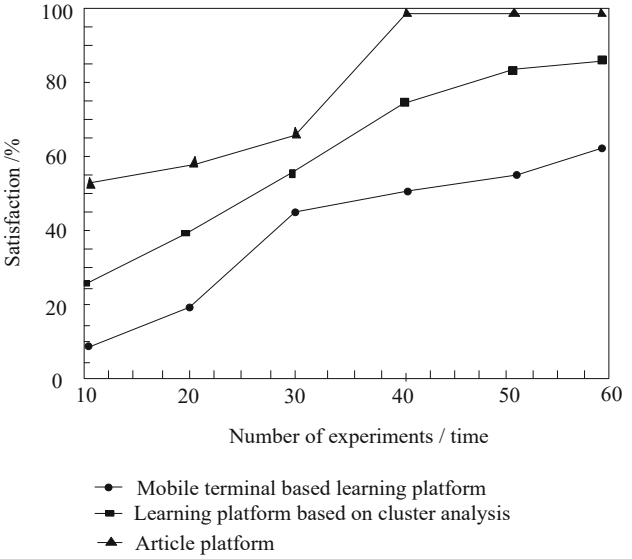

Fig. 4. Comparison results of student satisfaction

5 Concluding Remarks

The autonomous learning platform designed this time uses a variety of relevant theories to analyze several teaching modes widely used in colleges and universities, and proves that the autonomous learning theory and its related theories are not as effective as college students' English learning in the network environment. Popular. Therefore, self-directed learning and self-directed learning supplemented by question-answering mode cannot become the main means of foreign language teaching and learning in colleges and universities, and their use must be effectively monitored. In terms of theory, it deeply analyzes the theoretical basis of autonomous learning under the network environment and the basic concepts and connotations of autonomous learning under the network environment, and analyzes the relevant elements of autonomous learning under the network environment. At the practical level, use a systematic method to look at the process of college English classroom teaching, especially to demonstrate the effect of modern multimedia technology in college English teaching from a holistic perspective, and to analyze the causes of problems and clarify disorders through experimental tests. Phenomenon, and propose an optimization strategy. It has become the driving force for establishing and improving the teaching management system of online self-learning and using a variety of multimedia tools to improve information literacy. The follow-up research will focus on the direction of data diversification and improve the accuracy of the self-learning platform.

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