Research on the Application Mode of Mobile Learning in English Education Based on 4G Technology

YuChunyan

Nanchang Institute of Science &Technology,Nanchang 330108,China

Abstract. Based on the mobile 4G technology, this paper proposes a new kind of micro English education learning mobile platform with the help of the mobile phone terminal and the Android system. Micro learning platform is flexible and open structure, and this platform can quickly apply to the mobile terminal. 4G technology has the characteristics of fast communication and multi network integration, which can further integrate its own advantages and build more effective micro learning space. Based on the 4G technology, micro English education learning mobile platform provides the interactive service between the teachers and students. The students can use the software to communicate with the teacher when students are learning English; the teacher can send the teaching materials through software platform, realizing the interactive communication between teachers and students, this platform also promotes the development of the interactive teaching mode.

Introduction

In December 4, 2013, the industry and information ministry issued a 4G camera for China's three major telecom operators marking China's mobile technology has officially entered the 4G information era [1-3]. Compared with the 3G technology, the 4G communication speed is faster, the technology has better compatibility and the performance of multi network fusion is higher, it can effectively improve the speed and quality of information transmission [4,5]. As the core technology of 4G, the MIMO technology can realize the effective segmentation of the communication signal, which can reduce the loss of the traffic, extending the communication distance and antenna receiving range. 4G technology has improved the reliable technical support for mobile learning, and it is the large-scale popularization of 4G technology in the mobile terminal, which provides a convenient for the implementation of the concept of English mobile education.

The New Models and Advantages of English Mobile Learning in 4G Technology

Learning resources. With the development of computer and network technology, network teaching has become a new way of teaching English, the network learning materials have become rich and colorful, so students can accept all kinds of English teaching courses through the network teaching, which greatly enrich the students' knowledge and vision [6-8]. Using the high-speed internet access function of 4G mobile technologies, students can read all kinds of English teaching materials, including audio, video and pictures and so on, and the intelligent mobile phone operators can help students more convenient use of the tutorial teaching through the App application program.

Carrying and using convenience. Compared with the computer, the smart phone is a small size and very convenient portability, and the use of charger and charging treasure can easily solve the problem. Traditional paper books are not easy to carry, and a book can only be one aspect of English learning, but smart phones can be installed in English dictionary, audio-visual software, English game software and a large number of interesting learning materials, at the same time it can expand the scope of English knowledge, saving buying books, learning materials and equipment cost.

The implementation of interactive teaching. Smart phones can use 4G technology to access wireless network, to achieve the English tutorial web browsing, online chat, send and receive e-mail, but also to achieve the computer interconnection and network data transmission [9]. Using 4G network, students in learning English can communicate with the teacher through social software, teachers can also interact with students; teachers can send teaching materials through the software

platform, to achieve interactive communication between teachers and students, and to promote the development of interactive teaching mode.

Powerful voice. 4G network smart phone terminal can not only expand the function through the English application, which also has the advantages of multimedia features, high screen resolution and high processing speed. English teaching as a language art should focus on the visual, listening and speaking [10]. In the 4G smart phone terminal, students can download learning content using 4G network, they can use idle time to listen and look at English, but also can use social software to chat with foreign friends, to improve English level. Students can also use the 4G network to browse or now foreign movies, and they are both entertainment, but also to improve their English level.

Mobile 4G English Micro Learning Platform Architecture

The micro learning platform based on 4G network is a kind of digital mobile learning mode, learning unit size is relatively small and the learning time is short. Micro learning is generally presented in the form of a unit, and it can be long or short and can be controlled by the learner at any time [. Micro learning has a strong dependence on 4G networks and mobile terminals, and it is hard to start a micro learning to leave the mobile terminal [11,12]. At present, the micro learning way is very popular, and this platform can provide personalized services to learners as the center. The structure of the platform is shown in Figure 1.
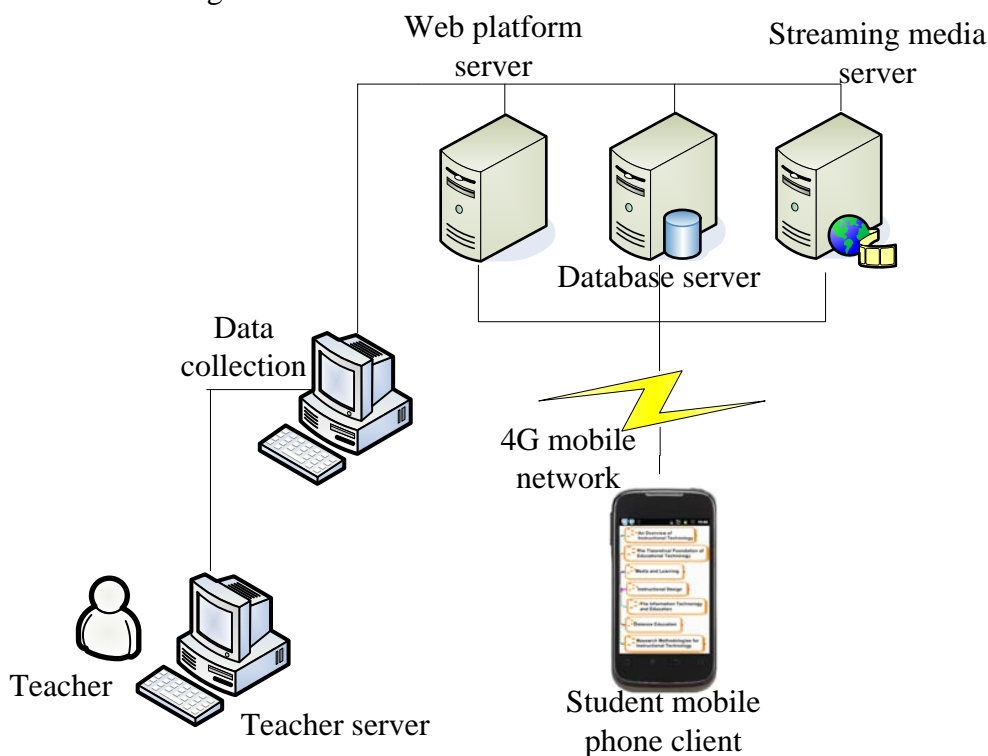

Fig. 1 English micro learning 4G mobile platform

Figure 1 shows the structure of mobile learning platform based on 4G network, the two ends of the platform are the teaching server and the students. The teacher can upload the teaching resources to the data server through the data acquisition, the data server includes web server, streaming media server and so on; students use 4G network to access the data, they can get the need of learning resources. Real time interaction between students and teachers can go through 4G network, improving the efficiency of English learning. Based on 4G micro learning mobile platform, there are two main characteristics:

(1) Learning content and time fragmentation

The traditional education mode has a higher degree of dependence on the internet, the students are also more stable, and the 4G technology is integrated with local area network, internet, telecommunication network and broadcasting network, making English learning easier. Micro

learning breaks the limits of the learning place and time, to carry out re structure for the contents of the study, and making the learning content exist in the form of a large number of scattered fragments. The essence of micro learning is the learning of debris, the use of bit by bit accumulates knowledge and information, to increase the knowledge and improve the purpose of the skills. The learning content of the fragmentation includes all formal and informal audio-visual materials, and learners can use audio-visual information in real time to achieve the purpose of learning anytime and anywhere.

(2) Cloud storage to achieve resources cache

Storage capacity is the main bottleneck of developing micro mobile learning platform, and 4G technology can effectively solve this problem by using cloud storage technology. Cloud storage uses the storage platform of the composition of distributed remote server, and it is the implementation of a unified scheduling, so storage capacity is very strong. Micro mobile learning platform can be found on the platform, it is the form of digital to extend on paper content. After logging into the cloud storage platform, learners can become a resource, and on the one hand students can search the required content through the cloud platform; on the other hand, learners can also save the learning content to the cloud platform, to expand the resources and realize the resource dynamic storage.

Design of Android English Teaching Software Based on 4G Mobile

At present, there are two forms of information transfer in English learning, one is the browser form, and anther is the form of mobile client. The browser can access to learning materials through the internet, such as the use of WAP web browsing, but it is need to use the form of wireless application protocol, so users access to learning resources through internet. This form is more popular with the majority of teachers and students, because learners can obtain rich and vivid learning resources through multimedia information in this mode of learning, such as pictures, video and audio, but this way is relatively high cost of network. Another is the form of mobile client, this form is more features of mobile learning, student users can download resources through the 4G network to quickly download, and then install to the phone, finally student users through the client cannot subject to time and place restrictions, but this method is less real-time interactive, therefore, these two methods can be used in combination. This paper designs the 4G mobile learning platform for English language mobile teaching content and transmission form as shown in Table 1.

Table 1. 4G micro mobile teaching platform learning content transmission mode

Learning content	Transmission mode
New vocabulary	Application program
Professional phrases	Application program
Course content	Application program
Vocabulary test	Application program
Listening practice	Application program
Learning forum	Web browsing
English data sharing	Web browsing
Real time interaction	Web browsing

Table 1 shows the content of the 4G micro mobile teaching platform, in which the vocabulary and course content are mainly installed on the mobile phone based on the local application way, the forum and the resource sharing as well as real-time interactive part use the form of the web browsing., they will learn English in a micro learning mobile platform when the students' environment is not fixed, so it is difficult to focus on the long time. In the development of the platform, the learning module is divided, we can control the learning time in each module. The effect of the module partition is shown in Figure 2.

Fig.2 The list of English micro learning mobile platform unit

Figure 2 shows the list of English micro learning mobile platform, involving 8 units and 28 chapters. Each chapter contains four parts, including words, vocabulary, phrases and course content. In order to quickly connect the contents, this platform needs to establish the navigation content as shown in Figure 3.

Fig. 3 English teaching content navigation

Figure 3 shows the navigation contents of the English teaching micro mobile platform, the four parts use B, C, D and A tagging, they can connect to the relevant leaning content after learners click on these buttons, and then they use the return key that can return to the navigation bar. Using this platform, it can effectively achieve the purpose of learning anytime and anywhere, improve the learning efficiency and fun. At the same time, the platform provides the forum and the interactive communication function module, which enables the teacher to be able to launch the interactive teaching effectively.

Summary

4G technology has affected the development of all walks of life, but also offered a new way for the development of education. This paper introduces the relevant theory based on 4G network and mobile learning and analyzes the advantages and characteristics of mobile learning under the 4G technology support, and proposes a new platform for English education based on 4G and android system. Based on the actual needs of English learning, this paper designs the function of the system, the platform has

interactive forum and communication module, which can effectively improve the interaction between teachers and students, improving the efficiency and level of English teaching.

References

[1] J. Wang, L.T. Zhang. Research on mobile learning based on 3G Technology. Modern computer, 2013(1): 44-46.

[2] X.P. Yao. 4G technology and its impact on China. Jiangsu science and technology information, 2013(3): 11-12.

[3] Y.Q. Peng, J.Q. Wu. Analysis of the possibility of mobile micro learning based on mobile phone terminal. China education information, 2013(19): 13-15.

[4] W. Zheng, Y.J. Q. The construction and application of mobile learning system in distance education. China distance education, 2014(3): 82-83.

[5] X.C. Gao. Study on the distance open education mobile learning mode based on fragmentation learning. Journal of Jiamusi Education Institute, 2013(11): 22-23..

[6] F.Y. Li. The application and thinking of multimedia in English teaching. China's information technology education, 2014(8): 43-44.

[7] L.J. Song. The psychological characteristics of middle school students in English teaching. Educational exploration, 2014(3): 55-56.

[8] J. Song. To pay attention to the students' emotion in English teaching. Chapter, 2009 (5): 92-93.

[9] Y.M. Zhu. A new thinking on improving students' learning interest and motivation in English teaching. China's off campus education, 2013(4): 105-106.

[10] Y. Yang. The advantages and disadvantages of multimedia teaching in English teaching. Journal of Jilin radio and Television University, 2014(6): 146-147.

[11] Y.H. Zhang. A study on the dynamic evaluation model of web writing teaching in College English. Foreign language circles, 2013(4): 73-81.

[12] X.Q. Wang. Theory and practice of higher mathematics stratified teaching mode. Jilin education, 2013(11): 20- 21.