Design of Mobile Micro Learning System for English Words Based on Computer Technology

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Abstract

With the development of computer technology and multimedia technology in recent years, distance education is made possible. Distance education, as a means of education, will gradually play a huge role with the development of society. Distance education takes the network as a teaching carrier, which can carry the content well and access it anytime and anywhere. At the same time, the development of computer technology and mobile information technology has laid a foundation for the design and application of mobile learning platform. The teaching requirements of English learning in colleges and universities are more and more intelligent, intelligent and multimedia, and computer is of great help to English vocabulary learning. This paper mainly expounds the design of English vocabulary mobile micro learning system based on computer technology, according to the current situation of English learning system to make their own understanding, and according to the problems of the current English vocabulary mobile micro learning system solutions, the purpose is to speed up the process of English vocabulary mobile micro learning system design under computer technology, improve the speed and efficiency of students learning English.

Keywords: *Computer Technology, English Learning, Mobile Micro-learning system*

1 INTRODUCTION

The continuous development of computer technology and mobile information technology laid a foundation for the design and application of mobile learning platform, the current school for English learning is gradually tend to intelligent, information and multimedia, based on the current application range of J2EE technology, design with integrated, professional English vocabulary mobile learning platform [2]. This is of great help to students to learn English, according to the different performance of mobile phones can also be appropriately adjusted, so as to meet the different needs of each student [3]. The development of the Internet has also brought about changes in learning styles, freeing students from the traditional way of learning in which teachers are the main body and learners passively accept knowledge, and making learning styles a diversified and non-linear process [5]. On the one hand, learners can get to know diversified learning resources through the Network; on the other hand, the network provides learners with a way to find their own learning and choose appropriate learning resources independently.

2 CONTENT DESIGN OF MOBILE MICRO LEARNING SYSTEM FOR ENGLISH VOCABULARY

The first is the difficulty of designing words.In view of the speed of students' learning progress, we need to carry out different degrees of vocabulary learning. Most of the text is simple vocabulary, which for students need to master basically [6]. The complexity of vocabulary will directly affect the learners on the memory effect of first contact and learning words. Generally speaking, the number of syllables of vocabulary and the frequency of use will affect the memory effect to a large extent, so formulas can be used to calculate the complexity of vocabulary. The second is the design of the design of the vocabulary aggregation strategy. Whether the students can effectively master the learning materials will directly affect whether the word memory effect is effective [12]. When learners first start to learn words in the vocabulary system, it is quite important to carefully analyze the connection between words [7]. After this, the forest becomes more interesting and convenient to memorize with association, summary and other memory methods. The specific approach of lexical aggregation strategies is

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to cluster loosely, seemingly disconnected sets of learning objects according to semantic relationships between words, and then place those semantically closely related words in the same set. Usually, vocabulary learning systems can converge more effectively through homology, similar appearance, synonymous and antisense, etc [8]. Finally, there is the presentation of the design vocabulary. Generally speaking, vocabulary presentation mainly includes forgotten push vocabulary, online / offline query vocabulary, vocabulary learning and several other common forms of presentation. Since different phones have relatively limited memory capacity, so forgotten push words are often more suitable for using text form to show the drought. When online query, more combination of text and pictures to vividly present vocabulary, and offline query, the form of text is the present vocabulary can often get the best effect, mainly including phonetic symbols, interpretation, example sentences and so on.

3 CONSTRUCTION OF AN ENGLISH VOCABULARY MOBILE LEARNING PLATFORM BASED ON J2EE TECHNOLOGY

3.1 Build the overall construction of transliteration vocabulary mobile learning platform based on J2EE technology

In this server communication mode mainly in the J2EE server communication mode selection will generally adopt the following methods, in the design process UDP Datagranr Connection based on TCP Socketconnection, Httpconnection based on Http protocol, the use of Web Service for corresponding access, if the use of socket to communicate, in the server side need to take into account the concurrent synchronization rejection of multithreading, difficult to operate larger: If accessed using a Web Service, XML parsing is required [10]. As shown below:

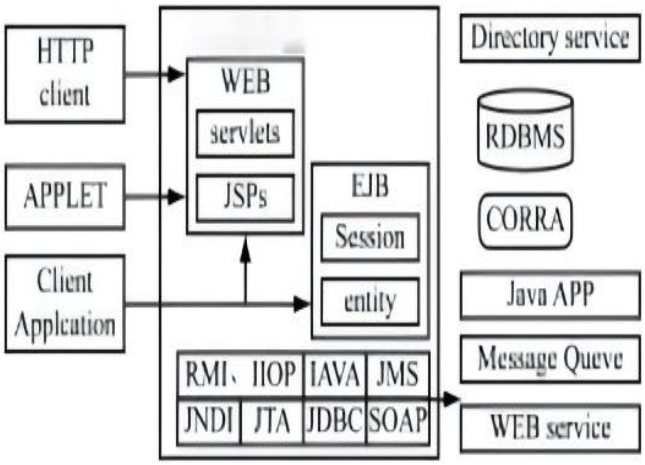

Figure 1: Overall design architecture of the mobile learning platform

3.2 Specific design of the platform

The design of J2EE server port can be applied to a variety of designs, such as MVC, DAO and other technical architecture to achieve, of course, can also use JD-BC technology and SERVLET technology to achieve, this study uses the MVC design pattern, the specific flow of the pattern is model, view and control software architecture. It is a classic software architecture [11]. The MVC design pattern was developed from smalltalk-80, a relatively old programming language from the 1980s, and is now widely used by Oracle's Sun corporation. From the Angle of the design pattern, MVC design pattern will be split, the user interface is divided into controller, view and model, the three parts have their own specialized division of labor, in order to solve the problems of the design level, the role of the controller is on the platform in the user's behavior is defined, and the definition of user behavior reflected into the model [9]. This feedback allows the model's data countdown to be updated. But also can according to the different performance of view, to make the corresponding choice between, the view is to explain the model tool, the user input information is sent to the controller, and then based on the actual update to change the view of model, view also gives the controller change view permissions, can choose according to the business logic corresponding to and finally presents the results of timely feedback to the user, logo is the user feedback, the end of the MVC model is on the application status of encapsulation, the state of the corresponding user query, and changes in the state of the controller to change the view, the other model and creates a link between database, database storage and judgment.

Table 1 Construction of an English vocabulary mobile learning platform based on J2EE technology

Construction of an English vocabulary mobile learning platform based on J2EE technology		
Build the overall construction of transliteration vocabulary mobile learning platform based on J2EE technology	Specific design of the platform	Learner ability assessment
In this server communication mode mainly in the J2EE server communication mode selection will generally adopt the following methods, in the design process UDP Datagranr Connection based on TCP Socketconnection	The platform chosen for this design is Android platform, which is widely used and well known among smart phones currently used by people.	Based on the fuzzy algorithm of the system, relevant records can be obtained from the database according to the four data of online learning time, average daily vocabulary growth, average answer time and total vocabulary mastered, so as to evaluate students' learning ability

The platform chosen for this design is Android platform, which is widely used and well known among smart phones currently used by people. Compared with iOS system developed by Apple, Android platform is a completely open mobile development platform, which is open to users both at the bottom and at the top. This system development process chooses JAVA language, JAVA language application scope is more extensive is also the mainstream language [4]. The development environment is Eclipse, and ADT JDK and SDK development tools are configured in the development environment [13]. At the same time, the application of Android platform needs to involve its own four controls. The Main container of mobile platform is Main Activity in the development process, and functions and course information modules are added to the container. Help students to complete the corresponding learning tasks [14].

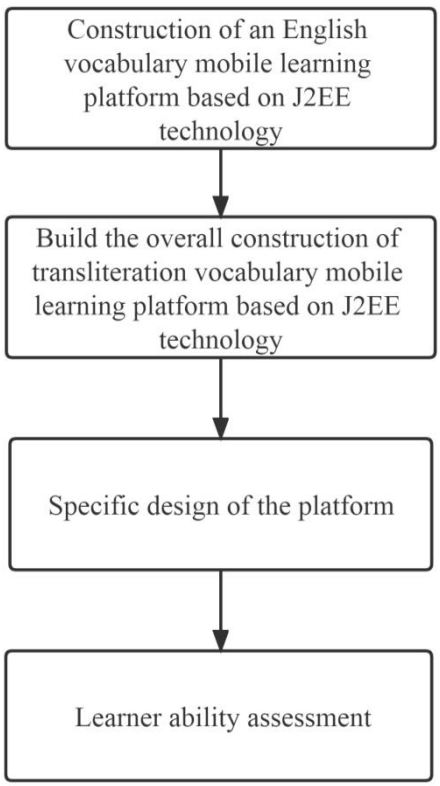

Figure 2 Construction of an English vocabulary mobile learning platform based on J2EE technology

3.3 Learner ability assessment

Based on the fuzzy algorithm of the system, relevant records can be obtained from the database according to the four data of online learning time, average daily vocabulary growth, average answer time and total vocabulary mastered, so as to evaluate students' learning ability [15]. The main codes are as follows:

```
select avg(studyTime), avg(testTime), avg(addNum) from useraction where tdate >

date_sub(curdate(),interval 1 week) and userid = xxx;

select totalNum from useraction where to_days(now()) - to_days(tdate) = 1;
```

The code for the realistic data calculating the student's estimated score is as follows:

```
public double getScore(int testTime[], int studyTime[], int totalNum[], int addNum[]) throws

Exception{

double score = 0;

for(int i = 0; i < testTime.length; i++){

for(int j = 0; j < studyTime.length; j++){

for(int k = 0; k < totalNum.length; k++){

for(int l = 0; l < addNum.length; l++){

int singleScore = 0;

DataRow datarow =

dao.findWeightByLevel(testTime[i], studyTime[j], totalNum[k], addNum[l]);

if(datarow.msgCode == 0){

switch(datarow.scoreLevel){

case ScoreLevel.one:

singleScore = 20 * datarow.weight;

break;

case ScoreLevel.two:

singleScore = 40 * datarow.weight;

break;

case ScoreLevel.three:

singleScore = 60 * datarow.weight;

break;

case ScoreLevel.four:

singleScore = 80 * datarow.weight;

break;

case ScoreLevel.five:

singleScore = 100 * datarow.weight;

break;

score += singleScore;

throw new BussinessException();

return score
```

This allows the learners to be accurately evaluated for learning.

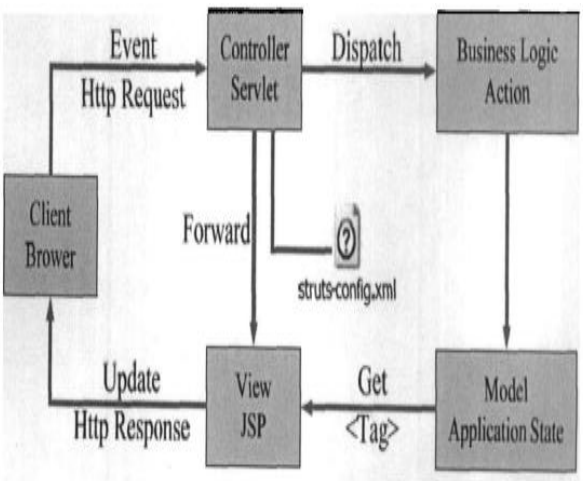

Figure 3: Schematic diagram of the system architecture and working principle

4 IMPLEMENTATION OF THE WORD RECOMMENDATION MODULE

The first is the data acquisition aspect. At present, the disclosed data is very large, and people can obtain quite a lot of data information. In the face of a huge amount of information, we need to screen and select a certain amount of data, select the data that people need and then conduct certain data integration [1]. The second is the corpus pretreatment. In the process of dealing with the original corpus, it contains many meaningless symbols and empty words, so it is necessary to divide these words without meaning, and process the amount of information into the smallest unit that the computer can process [16]. The NLTK package is also used to extract the different deformation of English words with the same magnetic sense, and finally restore it with a function, only requiring the data structure of the incoming function, and these steps can be realized.

Table 2 Implementation of the word recommendation module

Implementation of the word recommendation module	
acquisition aspect	corpus pretreatment
very large, and people can obtain quite a lot of data information	it contains many meaningless symbols and empty words

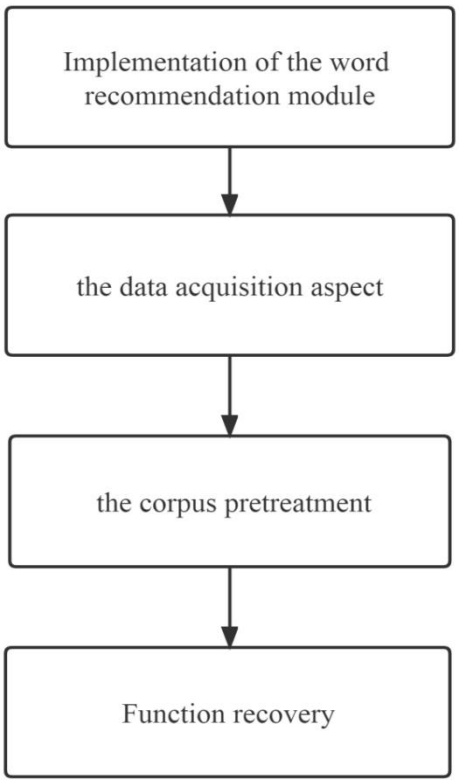

Figure 4 Implementation of the word recommendation module

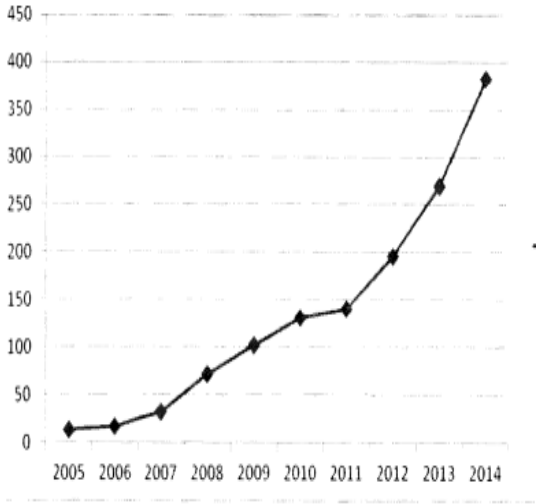

Figure 5: Vocabulary mastery for related years

5 THE ROLE OF NETWORK TEACHING

It can further expand the influence of educational informatization. The rapid development of computer network has improved the efficiency and initiative of work and study, and also led to the reorganization of education system and the redistribution of social education resources. Network technology will fundamentally improve the level of educational productivity, realize the integration and sharing of teaching resources, make the way of education become diversified and open, the integration of educational resources, and the modernization of teaching management. In terms of educational methods, the Internet provides an interactive platform for information resource sharing, multi-directional mutual communication and cooperative learning. Through the promotion of interactive platform, the education mode changes from single and closed to diverse and open, which changes the traditional teaching relationship between teachers and learners to different degrees. Learners develop the ability of independent construction as the main identity of learning. The development of the Internet has also brought about changes in learning styles, freeing students from the traditional way of learning in which teachers are the main body and learners passively accept knowledge, and making learning styles a diversified and non-linear process. On the one hand, learners can get to know diversified learning resources through the Network; on the other hand, the network provides learners with a way to find their own learning and choose appropriate learning resources independently

6 CONCLUSION

With the deepening of the "Internet +" action plan, it is an inevitable trend to closely combine technology with education together. The rapid development of the Internet, the popularization of mobile devices and the increasing

enrichment of learning resources have created favorable conditions for the application of mobile micro-learning mode. It is crucial for learners to truly learn English well, to have a large vocabulary and to master various grammatical structures. Therefore, it is very important to build an English vocabulary mobile micro-learning system based on computer technology. It is believed that in the near future, the English vocabulary mobile micro-learning system will be gradually applied to colleges and universities.

REFERENCES

[1] Chunlian Ren. Design and Implementation of online English Learning System Based on J2EE [D]. Shandong University, 2009.

[2] Dengjun Yu. Design and Implementation of Junior School English Learning System Based on Bootstrap [D]. Hubei University, 2017.

[3] Daiyao Chen. Application Analysis and Investigation of Chinese Learning APP Based on Mobile Learning Vision [D]. Shandong University, 2020.

[4] Hui Wang . Research on the English vocabulary learning mobile platform for J2EE [J]. Microcomputer applications, 2018, 34 (09): 110-111 + 115.

[5] Jun Ge. Visual Characterization and Visual Presentation Design Strategies of Foreign Language Digital Learning Resources [D]. Central China Normal University, 2017.

[6] Jia Zheng. Design and Implementation of Computer-Based English Auxiliary Learning System [J]. Microcomputer application, 2018, 34 (12): 99-101.

[7] Li Liu. Research and Analysis of Key Technologies of Mobile English Learning System [D]. Shanghai Jiao Tong University, 2014.

[8] Lingling Guan. An Empirical Study of the Listening and Hearing Effect Based on the College English Learning System [D]. Huazhong University of Science and Technology, 2005.

[9] Lijun Deng, Tao Wang. Design of Mobile Micro Learning System for English Words Based on Computer Technology [J]. Automation and Instrumentation, 2018 (08): 100-102.

[10] Mingqing Sun. The Research and Implementation of the Adaptive Learning System Based on Fuzzy Logic [D]. Hubei University, 2017.

[11] Shiying Da. Design and Implementation of Computer Based Mobile Learning APP Based on layered Teaching [D]. Minzu University of China, 2019.

[12] Shiyun Wu. Design and development of intelligent Recommendation System for English vocabulary learning [D]. Shanghai Foreign Studies University, 2020.

[13] Wanlin Hu. The Design and Implementation of the English Reading Learning System [D]. Shandong University, 2020.

[14] Wenbin Wu. The Research and Realization of the Interactive Intelligent English Learning System [D]. University of Electronic Science and Technology, 2011.

[15] Yan Wang. Development and Implementation of Primary School English Language extracurricular Learning System Based on Mobile Terminal [D]. Hangzhou Normal University, 2016.

[16] Yun Xu, Rongrong Ma. Research and Design of the Interactive English Learning System for Primary and Secondary Schools Based on Mobile Learning [J]. Education informatization in China, 2012 (24): 83-85.