Learning Terminal System Based on the Computer Intelligence English APP

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Abstract. With the innovation of computer technology, the target requirements of online education platforms are constantly improving, and the design and research of learning terminal systems based on the Computer Great Smart English APP (Application) is becoming increasingly important. In the construction of the entire learning terminal system, how to improve the course learning efficiency of the system and improve the retrieval delay of learning resources is an important research that urgently needs to be addressed at present. This article summarized the advantages of the current learning terminal system through relevant research, combined with the main functional characteristics of the Computer Smart English APP, and utilized the MVC (Model View Controller) system architecture to apply on the learning terminal platform. The conclusion is as follows: Six subject samples were selected through simulation experiments, and the learning terminal system based on the Great Wisdom English APP improved learning resource retrieval compared to traditional learning platforms, with a comprehensive average decrease of about 15ms. At the same time, there were also improvements in course learning efficiency, with a comprehensive average increase of about 8.2%. This indicates that the learning terminal improvement system based on the Great Wisdom English APP has good results in practical applications.

Keywords: Learning Terminal, Big Smart English APP, System Design, MVC Architecture

1 Introduction

The development technology of mobile application learning systems is constantly developing, and the update speed of learning terminal platforms is accelerating. The purpose of this study is to improve the learning terminal system using the MVC system architecture and the Great Wisdom English APP.

There are many study findings on different online education learning terminal systems. Qian B, combined with the Android system, elaborated on the relevant content of system terminal platform construction based on the perspective of mobile learning. Moreover, this study analyzed the development path of mobile learning terminal evaluation based on Android systems from multiple perspectives, taking system architecture, system design, system implementation, and other aspects as benchmarks. Finally, the conclusion was drawn that the development of a learning terminal platform

is technically feasible and can meet the needs of most users, and should be further promoted and applied [1]. Han J designed a terminal iterative learning system based on neural networks for nonlinear control. According to the system input and output Algebraic function , he optimized the objective function and update the weight. The study finally validated the applicability of the learning terminal system through simulation experiments on train station control problems [2]. Zhang R A proposed an interactive interface model based on a learning system to address the issue of prolonged tutoring and feedback on mobile learning platforms for many current educational subjects. The final experimental results indicate that the retrieval delay in the learning terminal system is significantly improved compared to traditional methods [3]. Liang Y M developed various innovative learning methods with the development of the times. Combined with the teaching objectives of college English courses, this study designed a mobile learning resource terminal system that is consistent with college English textbooks. Its three basic frameworks are user level, resource level, and system level. The system further expands and improves college English textbooks, while giving students greater choice and a better learning environment, and meeting their effectiveness and personalized needs [4]. Zhang H S, in order to address the limitations of traditional teaching methods such as textbook teaching, combined augmented reality technology with existing teaching methods and utilized computer software and technologies such as Unity to develop a cross platform mobile learning terminal application program called "Drawing Stereoscopic Classroom". It was built in the teaching process of mechanical drawing and other courses and has functions such as automatic image recognition, touch control, and multi scene selection [5].

The combination of the development of the Great Smart English APP and the learning terminal system has prompted the need for re optimization research on the design of the learning terminal system in the field of online education [6]. The above research can improve information processing efficiency, but there is a lack of analysis of the learning effectiveness of some courses.

The application analysis of MVC system architecture in learning terminal systems is the main part. In this article, relevant research on the main functional characteristics of the computer smart English APP was utilized for improvement. The design and research were aimed at improving course learning efficiency and improving learning resource retrieval latency. The final results indicated that the learning terminal system based on the Great Wisdom English APP had good performance in practical applications.

2 Strategies for Learning Terminal Systems

2.1 Evaluation of the Effectiveness of Learning Terminal Systems

The learning terminal system is a comprehensive platform that integrates educational resources and learning tools, aiming to provide comprehensive learning support and convenient learning experience. By integrating various educational resources, including textbooks, courseware, exercises, videos, etc., the system provides learners with rich and diverse learning content [7-8]. At the same time, with the rapid development of computer information technology and Big data applications, the learning terminal system also provides personalized learning functions and is equipped with various learning tools to

help learners organize learning more efficiently and improve learning efficiency [9-10]. Based on the evaluation of learning effectiveness of various learning terminal apps, a summary of their learning advantages is summarized in Table 1.

From the above table, it can be seen that the advantages of learning terminal systems mainly include four aspects. Flexible learning methods can make learning unrestricted by time and location. Personalized learning support can provide personalized learning resources and suggestions. Interactive and Cooperative learning effectively provide online discussion and homework submission functions. Real time feedback and evaluation can adjust learning strategies in a timely manner [11-12]. In addition, the learning terminal system can also integrate diverse learning resources, effectively manage and organize them, making it convenient for users to search and obtain. This article introduces a mobile computer smart English app to improve and optimize traditional learning terminal systems, which is of great significance for improving the current user learning experience.

Table 1. Overview of the Advantages of LEARNING Terminal Systems

Advantage	Content
Flexible learning methods	Learning is not limited by time and location, and students can choose their own learning content according to their own schedule
Personalized learning support	Provide personalized learning resources and suggestions through recommendation algorithms based on users' learning needs and interests
Interaction and cooperative learning	It can provide online discussion, homework submission, evaluation feedback and other functions to promote interaction and cooperative learning between students
Real time feedback and evaluation	Users can have a clear understanding of their learning situation, adjust learning strategies in a timely manner, and improve learning efficiency and outcomes

2.2 Functional Features of the Computer Smart English APP

The Computer Smart English APP is a comprehensive mobile Android English learning tool that provides users with rich and diverse learning resources and functions. Whether it is vocabulary, grammar, listening, speaking, reading or writing, users can find suitable learning content in this application [13-14]. During the learning process of the app, users can consolidate their knowledge and verify their learning outcomes through practice and testing. At the same time, users can also communicate and discuss with other learners and professional teachers, improving their oral expression skills and communication skills. Therefore, whether beginners or learners with a certain foundation in English, the Computer Intelligence English APP can meet their learning needs and help them improve their English proficiency. The main functional characteristics of the Computer Smart English APP system are analyzed as shown in Figure 1:
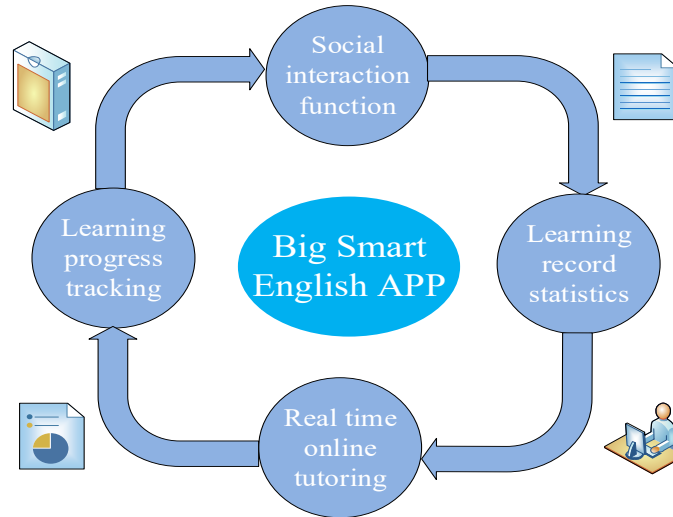
Fig.1 The main functional characteristics of the Great Smart English APP

In summary, social interaction function, learning record statistics, real-time online tutoring, and learning progress tracking are the main functional features of the Computer Great Smart English APP. Among them, word and vocabulary practice, oral and pronunciation practice, as well as writing guidance and correction are personalized features on the APP platform. Based on the Computer Intelligence English APP, the optimization design of real-time interaction and resource management can be integrated into the learning terminal system, and the MVC mode and its architecture analysis can be used to design a mobile learning terminal improvement system [15-16].

3   Learning Terminal Architecture and System Design

3.1   MVC System Architecture and Implementation of Learning Terminal Platform

After conducting research and discussion on the advantages of the learning terminal system and the introduction of the functions of the Big Smart English APP, the MVC architecture adopted by the learning terminal system is further analyzed. MVC is a common software design pattern, which is mainly used to organize code. At the same time, MVC architecture provides better maintainability, extensibility and Reusability, which makes the development and maintenance of applications more efficient and reliable on the basis of decoupling and flexibility. Therefore, it is applied to various desktop applications and mobile applications [17-18]. The composition structure and specific content of the MVC system architecture for learning terminals are shown in Table 2.

From the MVC system architecture of the learning terminal established above, it can be seen that the entire MVC is composed of three parts: model, view, and controller. In the learning terminal system, the model includes business logic such as student data,

course data, and grade data. The view includes course list pages, course details pages, and learning progress pages. The controller is responsible for processing user login requests, course query requests, and learning progress update requests. The advantage of using MVC architecture is that the responsibilities between the model, view, and controller are clear, which is conducive to code reuse and collaboration. At the same time, these structures have important reference value for implementing learning terminal systems based on the Great Smart English APP [19-20].

Table 2. MVC system Architecture for Learning Terminals

Structure	Description
Model	The model is the core part of the application, representing business data and business logic
View	A view is an interface that users see and interact with, responsible for displaying learning data resources
Controller	Controller receives user input

3.2 Design of Learning Terminal System Based on Big Smart English APP

Based on the relevant research on the overview of the advantages of learning terminal systems, combined with the main functional characteristics of the computer smart English app, and with the application of MVC system architecture on the learning terminal platform, the mobile learning terminal system is divided into learning course module, social interaction module, progress tracking module, real-time tutoring module, and user feedback module according to the important functions . Therefore, the design of the learning terminal system based on the Big Smart English APP is shown in Figure 2:
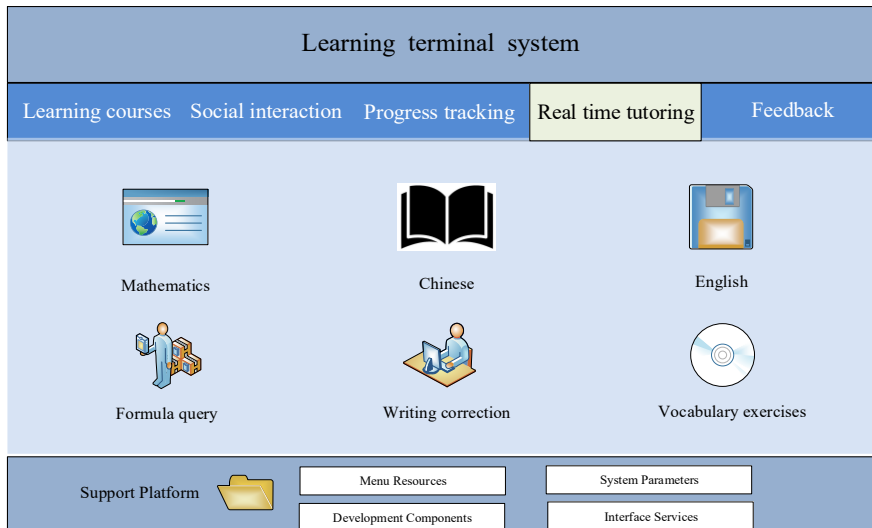

Fig.2 Learning terminal system based on the Great Smart English APP

From the learning terminal improvement system designed in the above figure, it can be seen that among the five functional modules of the system, the reasonable allocation of data resources is one of the criteria to test whether the learning platform is excellent. This article mainly calculates the proportion and weight of learning courses and internship guidance modules in the entire data resource. Firstly, the proportion of learning courses in the data resource weight is calculated, as shown in formula 1:

$$p = T_1 \div (T_1 + T_2 + T_3 + T_4 + T_5) \qquad (1)$$

Among them, T_1, T_2, T_3, T_4, and T_5 represent the resource composition of learning courses, social interaction, progress tracking, real-time tutoring, and user feedback in the learning terminal system data. The weight ratio of internship tutoring modules to data resources is calculated as follows in formula 2:

$$q = T_4 \div (T_1 + T_2 + T_3 + T_4 + T_5) \qquad (2)$$

4 Simulation Experiment Results

After completing the design of the learning terminal improvement system based on the Great Wisdom English APP, in order to verify the practical application effect of the system model in specific subject courses, the study conducted simulation experiments. Through simulation experiments, real subject course environments can be simulated, and system models can be tested and evaluated.

This experiment selected six high school liberal arts courses as sample parameters, named Mathematics A, Chinese B, English C, Politics D, History E, and Geography F, and used them as datasets for training and testing. Using Monte Carlo method to conduct 200 rounds of data testing and analysis within a certain period of time, the learning resource retrieval delay and course learning efficiency of the learning terminal improvement system based on the Great Wisdom English APP were obtained in six subject samples, and compared with the results of traditional learning platforms. The results of applying improved learning terminal systems and traditional learning platforms for learning resource retrieval latency are shown in Figure 3:
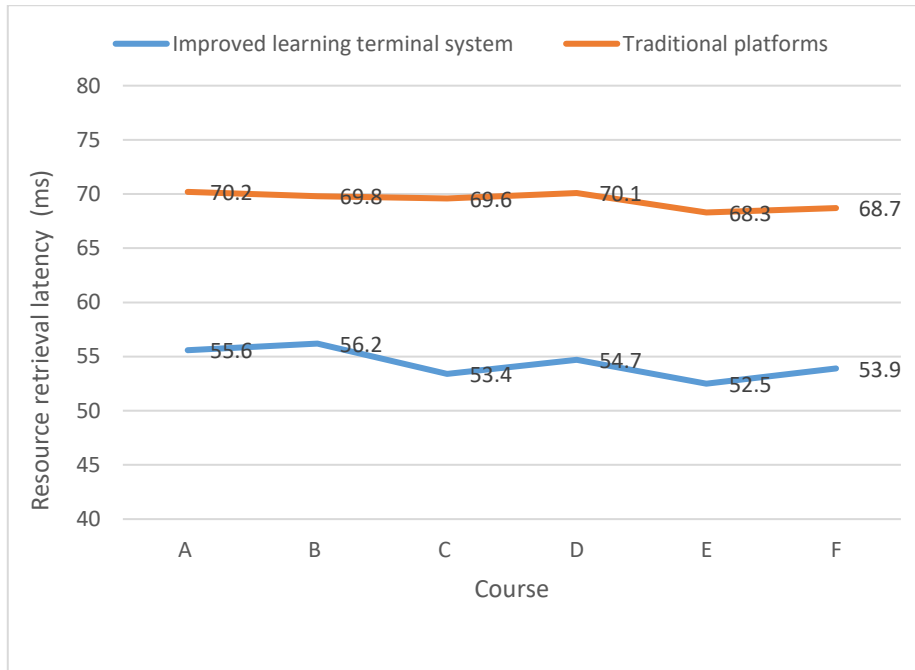
Fig.3 Improving the resource retrieval latency of learning terminal systems and traditional platforms.

Among them, the blue line represents the learning resource retrieval delay of the learning terminal improvement system based on the Great Wisdom English APP, while the orange line represents the learning resource retrieval delay of the traditional learning platform. It can be seen that the learning resource retrieval effect of the learning terminal improvement system is the best on English subject C, with a delay reduction of 16.2ms from 69.6ms to 53.4ms. The decrease in learning resource retrieval delay of other subject samples from left to right is 14.6ms, 13.6ms, 15.4ms, 15.8ms, and 14.8ms, respectively. It can be concluded that the comprehensive average decrease in learning resource retrieval delay of the learning terminal improvement system is about 15ms. This indicates that the learning terminal improvement system using the Great Smart English APP is an improvement plan in resource retrieval.

After discussing the delay results of learning resource retrieval mentioned above, the simulation experiment was continued. Analyzing the course learning efficiency of the learning terminal improvement system based on the Great Wisdom English APP, the improvement of course learning efficiency of the learning terminal improvement system compared to traditional learning platforms is shown in Figure 4:
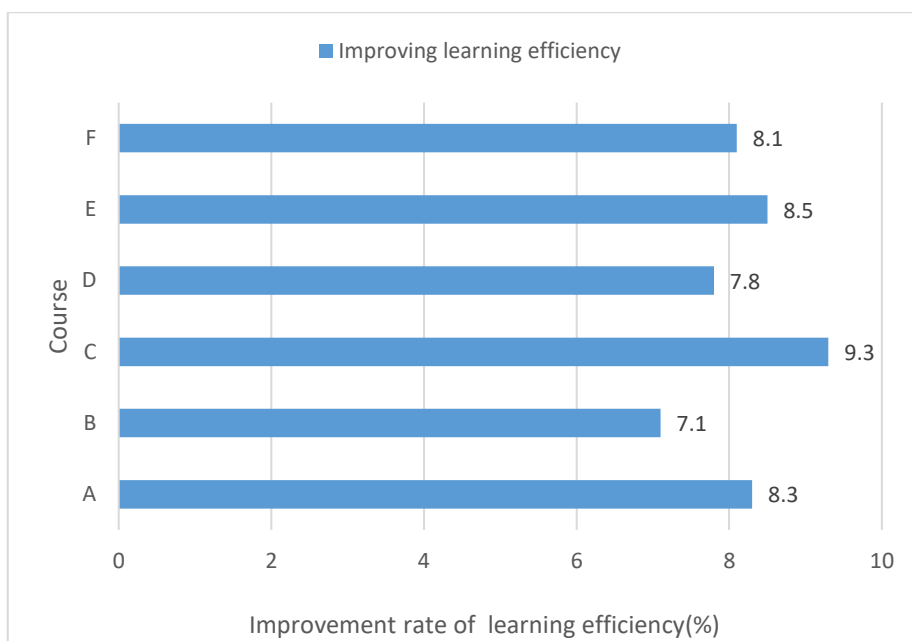
Fig.4 Improvement of course learning efficiency in learning terminal system

The blue column is course learning efficiency in the learning terminal improvement system based on the Great Wisdom English APP. It can be seen that the course learning efficiency of each subject sample has been improved, with each group of different samples increasing by 8.3%, 7.1%, 9.3%, 7.8%, 8.5%, and 8.1% from bottom to top. It can be seen that the comprehensive average improvement of the learning terminal improvement system has been about 8.2%. This indicates that the learning terminal improvement system based on the Great Wisdom English APP has a good application effect in terms of course learning efficiency.

5   Conclusions

Against the backdrop of the rapid development of learning application development technology, a learning terminal improvement system based on the Great Smart English APP can be widely applied in the field of online education. This article was based on the relevant research on the overview of the advantages of learning terminal systems. By analyzing the main functional characteristics of the Computer Big Smart English APP, and using the MVC system architecture to apply on the learning terminal platform and conducting simulation experiments, it was concluded that the learning terminal improvement system based on the Big Smart English APP had good application effects in learning resource retrieval and course learning efficiency. This article aimed to provide a learning terminal improvement system design based on the Great Smart English APP . Due to the small number of subject samples selected and the insufficient analysis of the MVC system architecture, may not cover all aspects of the terminal

system, resulting in incomplete and in-depth learning outcomes .Terminal systems are complex systems that involve multiple aspects of knowledge and technology, requiring learning and understanding through a large number of samples and examples.

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