Design Method of English Education Informationization Platform Based on 5G

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Abstract. In recent years, when carrying out educational activities, modern information technology and Internet technology have been integrated with each other to form a variety of educational information platforms, which have gradually replaced the traditional education and teaching methods. Using Internet thinking to improve the application level of education informatization is helpful to improve the quality of education and is of great significance to comprehensively promote the quality education of students. English is an important subject in student learning activities. English learning can improve the comprehensive ability of students, promote the healthy development of students, and enable students to better meet the needs of society. In order to improve learning efficiency, optimize the learning platform, and meet the needs of users, it is imperative to establish a 5G English education information platform. 80% of people in the current society are expecting the arrival of 5G platforms. Considering that in a high-density scenario, the number of terminals is large and the traffic is intensive. If the event scheduling method is still used to process data packets, there will be problems of too many event generations and too long processing time. Computing packet processing architecture. This architecture divides the time axis into multiple time slots. Based on the length and generation time of each data packet, the source terminal number of each data packet is mapped to the corresponding time slot position. By calculating the effective signals and interference in each time slot, the strength of the signal is used to obtain performance indicators such as system capacity and throughput.

Keywords: Education Informationization, Informationization Platform, English Education, Information Platform Design

1 Introduction
Since the birth of mobile communication in the 1980s, after more than 30 years of development, it has become a basic information network for human interconnection. Mobile communication has not only brought about a huge change in lifestyle and promoted the development of the national economy, but also had a profound impact on social informatization. The continuous development of the Internet of Things era has expanded communication services from person to person to people and things, things and things, and more fields have been added to the intelligent interconnection. It is precisely because
of the addition of various information technologies in education and teaching activities that people's learning styles, lifestyles, etc. have undergone dramatic changes [1]. As an important feature of the development of education in the information age: education for all, personalized learning and quality education have significantly improved the national quality of our country and played an important role in national innovation. And English is an important subject in student learning activities. English learning can improve the comprehensive ability of students, promote the healthy development of students, and make students better meet the needs of contemporary information globalization [2]. Vigorously promote the rapid development of basic education in China, and strengthen the process of campus culture construction in schools. In this process, modern information technology will be fully integrated into education, give full play to technological advantages, and promote the reform of educational technology and educational concepts, so as to promote the vigorous development of education informatization in China [3].

It should be seen that information technology is a double-edged sword: on the one hand, the rapid development of information technology has made traditional education unable to adapt to the rapidly changing external environment; on the other hand, information technology has also provided advanced methods and means for the innovation of education models And material and technical foundations, opening up new ideas and approaches for the transition from the traditional teacher-oriented, one-way "indoctrination" mode to the student-oriented "interactive" mode [4]. First of all, rich network resources can provide materials for college education, and the acquisition of network resources is simple and fast. As long as teachers make good use of it, it will be a valuable material library for education. Second, the development of information technology enables teaching and learning, and the release of information. Aspects such as access to and sharing of resources can be carried out in a time and space separation, thus expanding the time and space of education to a certain extent; once again, the development of information technology has made many traditional manual tasks through standardized processes and unified information. Encoding electronic means to complete, to a certain extent, improve the efficiency of education management [5-6]. However, while the network technology evolution has brought great convenience, we realize that the expansion of the network scale is accompanied by a series of unavoidable problems [7]. In particular, the new network system architecture is relatively complex, and the number of terminal devices is growing rapidly, which makes the network system resource use efficiency inefficient and the resource occupation situation close to the bottleneck. Therefore, how to reasonably and efficiently allocate resources in a complex network environment has become a difficult problem for future network development [8-9].

The research purpose of this article is to enable contemporary students to adapt to the development of the times, improve the efficiency of learning, and ensure that each terminal device can reduce interference between terminals under limited network resources, improve the effectiveness and reliability of network transmission, To ensure that students can study normally, the Internet is used as an information dissemination platform to widely collect teaching resources, update teaching content, and integrate resources to form an information warehouse for public use [10]. It is particularly important to build a 5G-based English education information platform.

2. Method

2.1 Common Analysis Methods of Network Performance
Common methods that can be used for mobile communication system performance evaluation, wireless resource management algorithm research, and network layer protocol optimization and improvement are: environmental testing, simulation modeling analysis, network experiment simulation combining software and hardware, and simulation platform software simulation.

2.1.1. Environmental Test Method: This method reflects the true operating conditions of the system by designing real simulation conditions to achieve various performance tests of the network system. It has the advantages of high accuracy and good real-time performance, but it has high use costs The
shortcomings of large randomness of experimental results. Especially in scenarios where there are too many terminal devices and the channel propagation environment is complicated, considering the constraints of running time, geographical environment, weather and climate, and the number of participants in the experiment, it makes it difficult to start the test process.

2.1.2. Simulation Modeling Analysis Method: use mathematical tools or establish mathematical models to model the network to be simulated, and use conditional assumption methods to consider factors such as subjective conditions and ignore secondary conditions to analyze current network related issues. In order to achieve a rough assessment of the overall network performance. However, in the case of network structure and network scale expansion, using this method to achieve network system performance evaluation will increase the difficulty, and the simulation error is particularly large.

2.1.3. Network Simulation Method: A combination of software and hardware is used to achieve the testing and evaluation of various network standards and the overall performance of the system. This method combines the advantages of pure software simulation and experimental scenarios to build tests. It not only accurately simulates the real simulation environment, simulates network protocols at various layers, etc., but also realizes the real communication process between nodes. The experimental results are true, reliable and reliable. Repetition and other advantages, but the complexity of implementation is relatively high.

2.1.4. Platform Simulation Method: Use the simulation software to build a complete protocol stack, complete the preparation of the protocols at each layer, and realize the simulation of the data stream transmission process throughout the network to determine the performance parameters of the network. Through this technology, we can obtain a large amount of effective data that can reflect the current network performance, and provide a basis for us to perform performance evaluation and improve the protocol standards of each layer. At the same time, the technology has simple operation, good controllability, and the simulation results are real and repeatable, so it has good application value.

2.2 Design Principles
The basic principle of platform design is to take the overall goal of platform construction as its purpose, to provide users with a platform application system with advanced technology, mature and reliable, flexible and applicable, and excellent performance. Therefore, the platform design should follow the following principles.

Reliability principle. Due to the complexity of the platform's users, there are both users in the education industry, as well as social groups such as student groups and parent groups. Therefore, in the design of the English education information platform, it is necessary to consider the security protection and emergency strategies of the system software and hardware to achieve system capacity. The basic requirements of disaster, backup, and recovery, the system provides a reliable database backup tool, and also fully considers the security requirements of government platforms, making it the responsibility of information release management. The system needs to guarantee 7 × 24 hours of real-time online services to ensure the security of information and data. In the design stage, hardware redundancy and emergency recovery must be realized.

Economic principles. The project construction must not be large and comprehensive, and it is necessary to consider the strategy of phased construction. While ensuring the implementation of system functions and smooth upgrades of software and hardware, the main goal of meeting the core needs of customers is to reduce system construction costs and achieve maximum benefits. Into.

The principle of combining advancedness and practicality In order to meet the needs of customers, economic benefits must be considered. This project adopts the principle of combining advancedness and practicality. Advancedness is to ensure that the entire system is advanced in structure and content.

Scalability principle The system must have the functions of smooth expansion and upgrade to meet the needs of later business development and function development. This is a factor that must be
considered at the beginning of system design. This system adopts an open architecture and reserves external interfaces to protect the initial investment and achieve system upgrade at low cost.

Maintainability principle The system design should take into account the needs of advancedness, maturity, reliability, openness, and security, and build a high-performance, highly reliable, and highly available network. The stability, security and reliability of the network system are the key guarantees for the normal operation of the application system. In the system design, high-reliability network products are selected, and the network architecture is reasonably designed to ensure that the network has the ability to self-heal, and to maximize the protection of services carried on the dedicated network. Normal operation of the system.

The principle of openness. The selected platform and software products need to have good openness, ensure the system has high flexibility and scalability, and fully consider the long-term development and construction of the system. While ensuring the application system business, it must reflect the advanced nature of the system. In network design, we must combine advanced technologies with existing mature technologies and standards, and fully consider the current status and future development trends of private networks.

3. Experiment
Firstly, the security, stability and reliability of 5G communication are verified through experiments. Through simulation, one RRM cycle is simulated. Each cycle transmits packets generated by terminals in the previous cycle. In order to avoid too many event generations when using the event scheduling method to process a large number of data packets, the simulation uses a packet processing architecture based on matrix operations. The parameters configured mainly include simulation time, service type, resource management algorithm type, terminal and Attribute value, etc. Test the stability and packet loss rate of this platform. Use this to test whether 5G is feasible.

Secondly, the survey method is used to investigate people's satisfaction with the current 4G platform. The survey objects mainly include teachers, students, parents, and members of ordinary society. They mainly investigate their use time, user experience, and any shortcomings. The purpose of the questionnaire survey is to fully grasp the current problems in Chinese and English education. Through data integration, the modern people's satisfaction with the current platform and the expected rate of 5G platforms are investigated, and solutions and opinions are better proposed.

Through the data integration and analysis of these two surveys, the deficiencies in the traditional old platform are abandoned, and some people expect features. It provides more comprehensive theoretical basis and suggestions for the design of 5G English education information platform, and can better realize the construction of 5G English education information platform design.

4. Results

4.1 Experimental Results and Analysis
The experimental results are shown in Table 1. It can be seen that the number of successful packet transmissions will decrease with the increase in the number of terminals. The packet transmission success rate decreases with the increase in the number of terminals. As the number of terminals increases, it gradually approaches stability. It tends to be stable, and the simulation running time will change slowly with the number of terminals. When the number of terminals is small and the service interval is large, the channel is in an idle state and the competition is small, so data packets can be transmitted at different times, making the packet transmission success rate close to 100%. As the number of terminals increases, more data packets can access the idle channel, which increases the number of successful packet transmissions. It shows that 5G is relatively stable and feasible. It can be seen from Figure 1 that people's satisfaction with the current English education platform is not too high, especially for ordinary members of society. The main reason is that the network data transmission is too slow, the efficiency is too low, and it takes too much time; the expected value for the arrival of 5G platforms is very high. Therefore, the establishment of a 5G English education
The information platform is particularly important. Table 1. Summary of 5G transmission performance

| Number of terminals | Number of successful packets | Packet transmission success rate (%) | Simulation run time / S |
|---------------------|------------------------------|-------------------------------------|------------------------|
| 10                  | 1000                         | 100                                 | 14.6                   |
| 50                  | 2000                         | 99.9                                | 25.5                   |
| 100                 | 3500                         | 90                                  | 62.1                   |
| 500                 | 5000                         | 85                                  | 86.0                   |
| 1000                | 5500                         | 78                                  | 120.2                  |
| 5000                | 5200                         | 68                                  | 248.2                  |

Figure 1. People's Satisfaction Rate and Expectation Rate for 5G Platforms

4.2 Suggestions for the Design of 5G English Education Information Platform

Based on a 5G high-density network scenario, this paper proposes a new data packet processing architecture based on a joint simulation scheme of various resource management technologies, which improves the scalability of the platform. The static interference coordination technology currently provided by the platform is only applicable to the cellular scenarios that meet the regular distribution, and the dynamic interference technology is only applicable to two adjacent cellular scenarios. Therefore, more general algorithms need to be added to improve the platform. At the same time, the platform currently only provides two typical 5G network scenarios. To meet the needs of different simulation users, subsequent investigations are needed, and more typical 5G scenarios are added to the platform to ensure the generality of research.

The method of packet processing based on matrix operation focuses on improving the execution efficiency of real programs and reducing memory consumption, so as to realize the simulation of ultra-large-scale terminal scenarios supported by the network. This architecture only uses a simple resource scheduling method to map the data packets to be transmitted to different timeslot positions, so its simulation accuracy will be reduced. Therefore, we need to design an efficient resource scheduling method based on the characteristics of the actual terminal and the characteristics of the scene, and map each data packet to the corresponding slot position to improve the actual accuracy. At the same time, the resource management scheme is aimed at the terminal in a static state, so it is necessary to explore the resource management scheme in mobile scenarios in the future.

Traditional resource management algorithms cannot adapt to the needs of future 5G high-density network scenarios. Therefore, the platform will next integrate the resource and interference management algorithms based on wavelet and artificial intelligence algorithms that our team will do...
into the platform's wireless resource management Module. Because the resource management module is an independent module in the platform and can be configured and debugged separately, you can add new interface functions to the module's technology set and add new artificial intelligence algorithms to the algorithm set. The addition of modules and joint tuning of the entire platform. If the new algorithm is to be combined with other existing radio resource management technologies, the output results obtained by the algorithm need only be input and passed to interface functions of other technologies.

5 Conclusion
This paper discusses the support and expectation rate of users of 5G English education information platform design, combined with previous research review and empirical research in this article, the results show that most people are looking forward to the arrival of 5G platform. From the proposal to the development of educational information system requirements, the software design took a short time, there were few related systems available for reference, and the user's needs and process links were insufficiently understood. Therefore, the system will inevitably be unable to fully meet user expectations, some of which Require and deficiencies are inevitable. The software design process is actually a process of combing and reshaping the process. While adapting and satisfying the existing needs of users, it will inevitably sacrifice the logic and integrity of the system process, which requires continuous optimization and adjustment in the later stage. After the system is running, the system functions are expanded and developed according to customer needs.

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