The Study on Building a “Mobile Campus” Service System

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ABSTRACT

With the continuous development of mobile Internet technology, as well as the large-scale popularization of smart phones and tablets and other intelligent mobile terminal equipment, various APP running on Android has been explosive growth. Due to the problems existing in the traditional digitization construction, it is necessary to development a fully functional and stable APP for teachers and students. More and more colleges and universities begin to attach importance to the development of mobile Internet. They try to put the digital campus extends to the mobile Internet and develop the mobile campus portal APP client. The article mainly illustrates the research background, the advantages of "mobile campus" application, the construction target, the design idea, development technology and construction content, management innovation, the effect of practice and development trends.

BACKGROUND

With the development of the advanced network construction and the information platform construction, all colleges and universities continue to explore the applications of new technologies and to promote the education reform of information technology. In recent years, with the popularity of smart phones and other mobile terminals in the world, the use of mobile Internet to assist the modern work has become a new trend. Mobile learning and mobile office are becoming the new needs of the campus users. The extension of digital campus information service in time and space dimensions are realized by campus APP. Campus informatization is developing rapidly in the direction of mobile information, and effectively plays the role of the mobile platform in the work of colleges. Some colleges have realized this trend and began to build their "mobile campus" APP[1].

THE ADVANTAGES OF "MOBILE CAMPUS" APP

College students are a group easy to accept new things and the potential customers of new media product. College students have recognized the convenience of mobile Internet, which has become an important direction of college students'...
network applications. Because of the convenience of mobile campus, real-time, high efficiency and other characteristics, so that college students rely on it more than the traditional Internet. Mobile campus has become the main source of information for college students.

The traditional digital campus runs on the local area network, which is restricted in space and time. Especially in today's mobile Internet applications, the traditional local area network PC information service has been unable to meet the needs of teachers and students. Providing intelligent mobile terminal services has become very urgent. All students, teachers or other system users feel more flexible by efficient implementation of information interaction. "Mobile campus" APP has the following advantages:

1) Access Shortcuts. Different from the traditional personal PC and wired network access, APP campus users can query information through 4G and Wifi network.
2) Economic and Convenience. Schools only need to provide a certain network conditions, without additional hardware equipment, which can make the mobile campus APP to dock with the existing education platform.
3) High Security. APP gives different permissions to different identity and provide a separate storage space and a reliable data backup to ensure that all information is not lost without leakage.

THE CONSTRUCTION TARGET OF "MOBILE CAMPUS" APP

1) Establish a unified information standard; realize the exchange of educational information resources; ensure the consistency of the data;
2) Build a unified mobile information platform and accelerate the speed of development;
3) Has the ability to cross platform, through the application of integrated platform to solve the problem of "information island";
4) Build a safe and reliable support system, including the standard specification system, safety management system, operation support system;
5) Expand the function of the traditional digital campus, and gradually realize the education process of the overall mobile information.

THE DESIGN IDEA OF "MOBILE CAMPUS"

A set of information management system based on Web has already existed before the design and development of "mobile campus" APP based on smart phone terminal. The "mobile campus" based on smart phone terminal is expanded and developed on the basis of the existed system.

Taking into account the long-term development needs, the system construction need adhere to the guiding ideology: "unified planning; implement step by step; strengthen application; resource integration; data sharing ".

1) Unified planning
The construction of "mobile campus" is a huge system engineering, which involves computer technology, network technology, communication technology and network engineering, software engineering, project management, and other aspects.
The construction work has high investment, long construction cycle, and involves many departments and personnel.

2) Implement step by step

This system is a long construction cycle project, involved in demand research, project demonstration, system deployment and integration, personnel training, popularization and application, feedback, improve the operating process, so the whole process of construction must be overall arrangement, implement step by step, to ensure the project progress and quality.

3) Strengthen application

Construction of the core purpose of this system is "application". Application can realize fast communication between departments, improve the scientific and democratic decision-making, form new management mechanism, and provide personalized information service for teachers and students.

4) Resource integration

Many colleges and universities have a lot of application systems after 10 years of informatization construction, purchase and development. New platform should be integrated with the existing information resources\(^{(5)}\). Therefore, the system construction should continue to integrate existing information resources and develop new resources.

5) Data sharing

Most of the original application systems can not be interconnected and form "information island", which has a serious impact on the construction of digital campus\(^{(6)}\). Therefore, the system construction must ensure the data sharing and real-time exchange between different application systems.

**DEVELOPMENT TECHNOLOGY AND CONSTRUCTION CONTENT**

Mobile campus is based on the Android application, including client and server side two parts. Development of the system is in the Google Android platform, using C/S structure and MVC mode in software development, using Android technology to complete the UI design layout based on Java language.

Mobile campus APP mainly involves schools, teachers and students. Based on analysis of the demand for information service of the three main body, we determine the system function design mainly includes the following modules:

1) School Module: Checking campus announcements, news, information such as the employment information and academic lectures; Browsing basic information of campus, departments, and he introduction of the basic professional information; Campus style display; Checking the telephone and calendar.

2) Teacher Module: Schedule query and reminder; Arrangement work for the class; Invigilating arrangement; Cloudnote memo and recording; Online solutions to students' questions; Providing a platform for the exchange of teaching and research for teachers.

3) Student Module: Curriculum, job and performance query; Cloudnote; Viewing class notifications and teacher information; Releasing lost and found; Providing academic, community, activities and other discussion groups; Ask the teacher online.

4) Digital Library: Online access to library information and loan management

5) User Management: User roles including teachers, students and tourists; All
real-name authentication, To strengthen management and standardize; According to
the different roles assigned different permissions.
6) Campus Life: Weather inquiry; Traffic inquiry; Free self-study classroom; Map location.
7) User Settings: Commonly used software settings options; Enhance the user experience.

The modules design is shown in Figure 1.

In short, mobile campus APP can send documents to teachers and students at any time by phone, also can achieve the paperless survey. Through the application of mobile campus APP for teachers and students have an information exchange space. Teachers and students can create a group exchange, but also can put forward suggestions, which form a daily communication and feedback mechanism. In addition, the "mobile campus" APP has the functions of file transfer, meeting notice, file management and data download, which improve the work efficiency of college office and realize the paperless office and reduce the office cost.

MANAGEMENT INNOVATION OF "MOBILE CAMPUS" APP

Deep Integration of Resources

Mobile campus is proposed on the basis of the traditional digital campus to realize information fusion. Overall construction goal of mobile campus is using the advanced network technology, the management standard and technical standard, to realize the informatization of school management work by building a comprehensive campus management platform. We put forward the mobile campus applications is not a simple cross-platform transplantation, but a deep integration of existing resources. Different from the traditional digital campus, mobile campus needs to integrate all kinds of data information in the systems, so that data can run on a unified mobile application platform.

Information Push and Information Filtering

The portability of mobile campus equipment makes up for the deficiency of the traditional platform services, and realizes the service mobility. Mobile campus can enhance the user experience and the timeliness of service, improve the efficiency of information transmission. On the one hand, mobile campus achieve the active delivery of information through service information push, reminders and other functions, which helps timely interaction of information transmission. Mobile campus not only provide many of the latest dynamic, but also expand the circle of students. On the other hand, the mobile platform will become a student vent emotional platform, and there will be some bad information. In order not to interfere with other students, we need to adopt information filtering, such as by manual audit or keyword filtering means, as far as possible to remove irrelevant noise information.
Figure 1. Mobile Campus APP modules design.
Resource Sharing and Individual Needs

Mobile campus cloud storage system of data control, you can easily share the data resources to a specific user. Users access the same document on the “cloud”, although users can share the resources into their own storage space, which is a good way to solve the problem of duplication of resources to store and download. However, it is easy to get lost in the information space, users can not quickly find the information they need. Therefore, the mobile campus need to provide users with a variety of personalized services by mining the user's personalized data, in order to meet the needs of different users .

THE EFFECT OF PRACTICE AND DEVELOPMENT TRENDS

Mobile campus promotes the informatization level and enhance the core competitiveness of colleges and universities. It is impossible to realize the education modernization without education informatization. Education informatization is the important content in the process of education modernization and an important step in the modernization of education. Our goal is to create "mobile campus" APP service platform, to improve the framework of digital campus system, to realize 24 hours "PC + mobile intelligent terminal" intelligence services.

Mobile intelligent terminal information management systems of colleges improve the speed of colleges and universities information transmission. The new system is the development and extension of existing information management system, and it will become the window of the information construction of colleges and universities. As the mobile device development technology constantly updated and the proposition of more applications, we need to extend the function of the system in the future. In addition, we need to build the system security solutions because of the opening and sharing characteristics of mobile network resources. "Mobile campus" APP will be more and more applied to the teaching management in colleges and universities and play a powerful role on improving the efficiency of educational administration management.

REFERENCES

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