Design of the Enrollment Information System for Foreign Students Under the Background of International Education

Miaomiao Zhou, Lei Wang and Jie Chen

ABSTRACT

With the development of the internationalization of higher education, the education of foreign students has become an important part of higher education in China. How to increase enrollment publicity efforts, design in line with the actual, to show the characteristics of the effective operation of foreign students enrollment information system, to attract more students to study in China, has become an important issue for many universities in China. The article analyzes the actual needs of the parties, and the database and function modules of the enrollment information system are designed in detail. The mutual information exchange and sharing, and the accuracy and efficiency of data transmission are improved.1

KEYWORDS

Education Internationalization; B/S Mode; Foreign Students; Enrollment Information System

INTRODUCTION

With the rapid development of higher education internationalization, international student education has been an important part of higher education in China. More and more Chinese students come to China to study, or pursue degree, or carry out short-term learning exchange. Meanwhile, the competition of the international student market between domestic and foreign universities is becoming

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more and more intense, various methods were tried to attract foreign students for many colleges and universities. Therefore, traditional enrollment for international students has been unable to adapt to the new situation. Over the past decade, in recent years, the Internet, cloud computing, Internet of Things and other information technology develop rapidly in an unprecedented pace. Information dissemination and processing technology has made a major breakthrough. The demand for class information is also growing rapidly. The depth and breadth of technological innovation is changing with each passing day. Demand for all types of information around the world is also growing rapidly. All of these can help people obtain, use, deal with and process information resources quickly and effectively which in turn to serve current social economy development and individual needs. Information technology has an unprecedented influence on the social production and life in various fields, affecting people's lifestyle and communication and bringing a huge impact on human’s life concept, cultural development and education system. Therefore, information technology has inevitably led to significant changes in the traditional way of education, and effectively promoted transformation of educational concepts and methods.

In the above background and situation, how to increase intensity of international student enrollment propaganda, design a foreign student enrollment information system in accordance with the reality, the characteristics and the effective operation and expand the enrollment scale of foreign students has become an important problem for many domestic universities. From the point of view of "problem oriented", this paper fully consider the current situation of college enrollment information asymmetry, and design enrollment information system for foreign students in China which can fully meet the actual needs of the international students and college managers. A number of functional modules were set up clearly in design. According to various activities of foreign students and college managers, the function of the system has been refined, which can reduce the negative impact of information ambiguity and asymmetry. Therefore, students can learn more about the enrollment of the school's relevant information to make judgments when considering whether to apply for the school. Meanwhile, colleges can have a comprehensive understanding of the applicant's information and needs, which will help to carry out enrollment work. This will reduce the workload of related personnel and greatly improve the efficiency of enrollment work.

RELATED TECHNOLOGIES

(1) B/S structure

To achieve new break though, an application system structure with 3-tier mode, which is named as browser/server(B/S) structure, is proposed based on client/server (C/S) structure. B/S structure makes a great progress than C/S structure. The B/S structure relies on the gradually mature Web browser technique, and integrates
some scripting languages of browser and ActiveX technique. With general browser, it implements many functions which used to rely on complex special software, and it also saves the cost of development. The greatest advantage of B/S is the ability of operating in any places without the requirement of installing any special software.

(2) Database

Since the recruitment information system for international students relates to many factors, the systematic design requires a database which can support system run effectively and steadily. Therefore, it is suitable to use a relational database. The system depends on Microsoft SQL Server databases, which gets many use trusted data storages and retrieval models in the Windows series platform. It has the strength of easy to use, good scalability, and integrated well with related software. SQL Server database brings more reliable storage function than others for structured data and relational data.

(3) ASP.NET

As a part of .NET Framework, ASP.NET is a server-side scripting technology which imbeds the script in the web page and can be performed by the web server. The most fundamental difference between ASP.NET and ASP is the transformation of the programming. The ASP.NET avoids the weakness of using script language for programming by ASP, and it theoretically can use any programming language. ASP.NET is a compiled programming framework, and it can implement the compiler by using early binding to improve the efficiency.

BASIS OF SYSTEM DEVELOPMENT

According the key requirements and the technical requirements of the recruitment information system for international students in China, system development should follow the following principles for guarantying the stable operation of the system.

(1) Openness And Sophistication

The interface should be open for expansion in the recruitment information system for international students. The system design should be scientific and reasonable according to the practical enrollment situation. In addition, the system settings of each module should be independent.

(2) Simple Interface And Easy to Operation

The enrollment information system design and development for foreign students should be simple and clear. Moreover, the information system need have the ability
to achieve the expected function to a certain extent with errors, that’s to say, it has strong fault tolerance ability, and it can remind the error type for the first time.

(3) Usefulness And Practicality

The enrollment information system design and development for foreign students, through the application of the school, more students know the class information system, continuously improve the efficiency of students apply for college admissions administrators and high level student admission. Therefore, the design of the system should be practical, with the use of the system, the intended objectives can be achieved.

(4) Stability And Reliability

The system should be fully guaranteed in a large number of foreign students at the same time, the system need run in an orderly manner without rapid paralysis of the system. When the number of users of the information system increases significantly, the system can still maintain a large degree of performance redundancy. The coupling degree should be reduced as far as possible in each function module, which is convenient for the full expansion of the system.

ACTUAL DEMAND ANALYSIS OF SYSTEM

(1) User Demand

The user demand is the function that the actual user or operator of the system needs to design. There are 3 kinds of students' enrollment information system in China: foreign students, admissions administrators and system administrators. Since each type of user has different intrinsic characteristics, the task and goal of the system are bound to be different.

The Actual Needs of The Foreign Students

Filling the basic information, browsing the basic information of the application for the collage, the basic information of instructor, consulting course basic information, browsing the notice issued by the school, downloading the relevant documents, etc..

The Actual Needs of The Enrollment Management

To check the basic information of the oversea students who apply for admission, browse the information of the oversea students and fully understand the situation, publish the scholarship information, publish the notice and the news, carry out the admission and so on.
The Actual Needs of The System Administrator

Regular maintenance of the basic information of oversea students, update enrollment information and data

(2) Analysis on Functional Requirements

The system will give different privileges according to the different identity of the user, thus realizing the corresponding function. The function of the oversea student enrollment information system should include: the oversea students can apply for further education through this information system, input system requirements for the provision of the relevant information, access to the school's main information, etc. Admissions managers can draw up the enrollment scheme and plan for oversea students in China according to the enrollment requirements of colleges and universities, and import them into the enrollment information system for the oversea students. It can browse the applicant's basic information and decide whether to admit it in the system. The system administrator has the highest privilege, which can carry out information management in the information system, process related data information. The functional requirements of the system basically include: the need for the function of the oversea students, the needs of the staff to function, the system administrator's demand for function.

The Actual Demand of The Oversea Students Who Apply For The Admission For The System’s Function

Network application; the oversea students enrolled in university enrollment information management system, through the network to complete the application procession-line, the main steps are as follows.

REGISTRATION

Students need to register first and become the user of admissions information system.

LOGIN

If the oversea student is a system user, you can login directly.

APPLY FOR ADMISSION

If the oversea students apply for admission, they should first login to the admissions information system, according to the system requirements to complete the information input, which can finish the application of the necessary procedures for admission.
INFORMATION INQUIRY

Overseas students can access the information system, inquiries whether they have been admitted. They can also inquire the enrollment information, university introduction, the discipline construction comprehensive situation, the specialty arrangement, the curriculum system, the teaching plan, the teacher and the tutor situation, the campus Life facility introduction, the campus sports activity carries on the general situation, the student internship and the social practice arrangement, the establishment scholarship and so on.

CORRECT INFORMATION

Students who are not eligible for admission can correct the information submitted.

If need to modify the information you have been accepted, you should contact the International Admissions Office of the school directly, after receiving permission to modify.

Administrators of System Functional Requirements

Student enrollment: Administrators contain information systems manager, enrollment administrators. Administrators need to audit the personal information of enrolment students who apply for the admission of school and then send the list of qualified recruitment staff, expressly admitted by the list below.

PROGRAM ADMISSION

Admissions plan includes the number of admissions to be students, enrolled in the professional, tuition fees, accommodation fees, registration fees, and so on. System administrators are supposed to exam the enrollment planning, data and statistics from the relevant Institute or Department.

AUDITING STUDENT APPLICATION FOR ADMISSION

Admissions officers responsible for admissions need to audit all information of the students based on school enrollment plan of the year.

INCREASING PROPOSED ADMISSION INFORMATION

On the basis of students’ comprehensive, Admissions officers should clear the list which decides students to be admitted, and then modify the admission state and mark student admissions.
Information Management

System Administrator can release, download and manage users’ information with full authorizations.

INFORMATION RELEASE

Relying on information systems, system administrators publish the latest information, including University news, international school of integrated achievements, special subjects, focused professional, the construction and opening of key laboratories, outstanding international teachers, campus life, accommodation, social practice, various types of scholarships and so on.

DOWNLOAD MANAGEMENT

System administrators upload the closely related material to information systems, such as admissions and enrollment, expert recommendation letter template, application of scholarships for studying in China (Chinese Government scholarships, the different kinds of scholarships set up by provinces) and so on.

USER MANAGEMENT

System administrators can manage system users’ basic information.

SYSTEM ARCHITECTURE

(1) Overall Architecture

Using Internet technology, establish the corresponding network programs in the LAN of University, and complete the control with the help of SQL Server database system, establish a more secure server database, enable efficient management and effective operation of the data platform.

Systems are mainly from two parts: admissions data import client and enrollment management system. Admissions data import client contains the following functions: import the DBF files derived from the enrollment system into the overseas student enrollment information system. Enrollment management system includes the management of the basic information of the admitted overseas students, the match management of admitted majors and opened majors in school, confirming the admission information of overseas students, printing the admission notices of overseas students, and so on. Among them, professional matching function can solve the error problems between the admitted majors and the opened majors in school existed in many past similar systems by establishing a mapping function. Moreover, the admissions information system can work effectively with university educational management system and digital welcome the new system,
completes the real-time transfer and efficient utilization of data, and plays an important role in promoting the realization of Digital Campus.

The overall architectures of the system are as follows:

Figure 1. Overall architectures of the system.

(2) System Module Design

Overseas Student Enrollment Management Information Systems will fully take into account the different forms of information system construction, achieve fully clear module management. System quite comprehensively accommodate the number of elements in the design, such as basic information processing module, information import management module, admission information processing module, admission notices processing module, rights management module, and so on. Each module consists of different parts which have different functions. The functional frameworks of enrollment information systems are as follows:

Figure 2. The functional frameworks of enrollment information systems.
The functions of enrollment information systems as shown in the following table:

**TABLE 1. THE FUNCTIONS OF ENROLLMENT INFORMATION SYSTEMS.**

<table>
<thead>
<tr>
<th>System Name</th>
<th>Composition Modules</th>
<th>Specific Functions of the Modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment Management Information Systems of Overseas Student in China</td>
<td>system maintenance</td>
<td>options and settings on the function module according to the actual conditions</td>
</tr>
<tr>
<td></td>
<td>Online registration</td>
<td>overseas student Online registration: view the registration procedure for examinee students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overseas student information management: queries and modifications to the examinee information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overseas student review: divided into initial interview, retrieval and admission</td>
</tr>
<tr>
<td></td>
<td>Overseas student management</td>
<td>Overseas student information maintenance: maintenance management of original information of the new students</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Print the Notice: Print the notice, the mailing address of notification and other information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sum Up the Freshman Data: Sum up the new data of freshman for statistical according to report form</td>
</tr>
<tr>
<td></td>
<td>Manage</td>
<td>Online Consultation: Overseas students can ask questions online and learn the relevant information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintain Consultation: Responsible teachers answer and maintain the questions of international student consultation</td>
</tr>
</tbody>
</table>

THE DESIGN OF SYSTEM SECURITY

In order to reduce the risk of system security, prevent hacker attacks and crack database to a great extent, this system will set the password of the users through encryption in the database to complete the storage. And system administrator have no permission to browse for more information about the user's password and only have the permission to reset the user's password.

As one of the widely used abstract algorithms in computer, MD5 algorithm is a kind of encryption system which cannot be decrypted, which has the characteristics of compression, anti-modification, weak collision resistance and strong collision resistance. It can be used to provide integrity protection of messages and ensure complete and consistent information transmission. This system will use MD5 algorithm to encrypt the user password. Through such steps, overseas student enrollment information system can still explicit the legitimacy of the user login
system when it does not know the plain password of the user's password. It can not only prevent the user's password leakage by the administrator, but also can greatly increase the difficulty of cracking passwords.

CONCLUSIONS

Overseas student enrollment information system follows the design principle of "low coupling between modules and high aggregation in modules", which is established in the structural system based on B/S. It fully uses SQL Server database and ASP.NET to actualize the smooth development and effective application of information system. Starting from the actual demand, this system establishes the fully functional application module, pays attention to providing the detailed information of the overseas students who study in China. It has the characteristics of simple procedure, convenient operation, outstanding performance, complete functions and so on. At the same time, this system uses several methods to improve the performance of the system and has high stability.

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