Chapter 1
Requirement Analysis of Flexible Network Teaching Platform

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Abstract This paper analyzes the current development of domestic and international information management system and flexible software development. This is a comprehensive analysis and comparison of the current site development and technology with the demand characteristics of this system developed, and this discusses the need for flexible network teaching platform from several aspects of the demand for system architecture, user interface requirements, and technical requirements.

Keywords Flexible • Network • Teaching • Platform • Demand • Analysis

1.1 Introduction

Network services can meet the educational requirements personally; make education to a greater degree of autonomy. Students can choose their own way of learning to make learning more effective, so that learning becomes active acceptance. The network teaching is flexible and variable, and it has no limitation of space and time and can provide education services at anytime and anywhere too [1]. But now, the most common form of teaching—classroom teaching—inevitably ignores the personality characteristics of student. So the classroom teaching cannot achieve the best learning results and sometimes may discourage the enthusiasm of learners [2].

Flexible network teaching platform is for current college traditional education and construction development of large comprehensive of network education and management platform, it will as traditional of class education of secondary and extends, Fusion teaching footage resources management, and teaching management, and

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Senate management, and students' learning and AC discussion, multiple teaching and management means, reduced teaching management cost, and improve learning efficiency, and improve campus community environment and strengthening students overall skills of purpose. Basic thoughts on the design of flexible system structure of network teaching platform is a user customizable portal access to all kinds of information services; users can be modular services project, select the module that they want to customize their own portal, and access to appropriate content [3]. Modular service items are determined by the underlying support by various functional subsystems, as well as school Web sites, providing data and business content.

1.2 Flexible System Structure of Network Teaching Platform

Flexible design of network teaching platform is useful for administrative convenience and is ease of use; its features can be customized for planning and construction, and the basic requirements are as follows: Establishment of basic information and management system did not modify the platform code directly through the system in the context of data management information tables in the platform, so you can quickly customize to meet the needs of individualized teaching management platform for colleges. Other requirements are establishing basic information management system for colleges, enabling the colleges, faculty, students and teachers, professional, classes, courses, and other basic information management systems. Personal teaching system, the entire system through the management role and user permissions hierarchy, customizes and personalizes individual instruction for different management platforms, such as for permission to teach teachers to "Web answer," "question management," "student information." From a flexible network teaching platform overall, very feature-rich, strong scalable, completely master this feature requires a certain amount of time. But for a certain class of users, many less related functions, so in addition to the design of a flexible structure of network teaching platform in addition to several platforms for different users. Flexible network teaching platform is divided into a number of platforms, namely teachers' working platforms, students' learning management platforms, the Senate workload entry platform, and innovation credit entry system. Flexible teaching resources for them as part of the platform have played an important role; each has its own characteristics and innovations and enriches the functionality and scalability of the platform [4].

1.3 Flexible Teaching Resources Teaching Platform System

Teachers' working platforms and students' learning platform as important components of the platform took over teaching service function. Using teaching resources platform to enrich campus network resources not only can improve teaching quality

and strengthen teachers and students of AC cooperation, but is also conducive to encourage the students with interest in learning and training students of integrated quality, and the main needs are as follows: established test bank, classified test questions, unified management; established students exercises system, students using system for exercises or for the extraction of questions composition papers under certain conditions in the library for self-test, timely understanding themselves of learning degree; established network examination system through the system from a set of volumes, examination arrangement, answer the entire process of the examination paper marking the traditional examination; established systems for statistical analysis, realization of examination questions, responses and comprehensive statistical analysis of the examination results, teachers' complete picture of student learning in a timely manner, and other information. Such as: an error rate for all the questions in the exam are statistical comparison, ease of analysis of each question, and some aspects of students' learning shortcomings.

1.4 Workload of Teaching Resources Platform Entry System

Workload reporting platform is designed for teachers when the outcome of the work of entry platform falls within the scope of educational administration. This platform to improve the statistical analysis of the scientific research work of the institute provides great convenience for submitted workload of teachers every year. On current management, workload management level individuals to report at the end of all departments consolidated summary report, from administration point of view, management bodies from colleges, four-tier management structure of the Department to individuals. But the workload from the management evaluation function can be broken down into individual workload and workload assessment team in two ways. The basis of information input includes individuals and department faculties. After the basic information, the main workload processing includes workload of teaching, scientific research and subject construction: entry and statistics of the workload. The summary statistics include the various departments, subject, and personal workload statistics. Main business is to subordinate departments of the summary statistical processing workload management and assessment. Teaching workload, including research work, subject of workload statistics, as well as summary assessment of individual and team work, focuses on managing the nature of their business. Workload management module and the function summary entry system are composed of individual workload, and workload statistics is composed of two systems.

1.4.1 Individual Workload Entry

Faculty through individual workload entry system teaching, scientific research and subject construction entry, and based on the assessment methods will be recording

the workload into work summary statistics, workload required to submit confirmation of entry. Workload information can be modified prior to the submission and cannot be modified after it is filed. Individual workload entry information is divided into three parts: teaching workload, workload, and workload entry of subject construction of scientific research. Individual workload entry actions include add, modify, delete, query, submit, and other functions.

1.4.2 Work Summary

Line managers in this sector of the workload of staff submitted information, summary by individual and team statistics, respectively. Actions include individual workload statistics, team workload statistics, query, printing, and other functions. By workload of teaching resources platform entry system, you can quickly and directly report the year of various scientific research and teaching, and running the online application system for scientific research further improves the timeliness of reporting. Workload entry platform enables full management of scientific research project from the project to a conclusion, including contract management, scientific research achievements management, international management, decision analysis, information sharing, maintenance, as well as online information publishing function, and reflects the progress at each stage.

1.5 Teaching Resources Platform of Academic Teaching Management System

Academic teaching management platform is the core of the platform of teaching resources, and teachers' working platform, the students' learning platform, the workload into the system, and innovation credits into the system are closely linked. Several other subsystem parameter sets, module, feature set, the permissions set on this system, by the operation of the system, can be based on other systems need to be customized to meet the needs of different permissions and different kinds of people. Academic teaching management platform module is set as follows in Fig. 1.1.

1.6 Innovative Credit System

In order to cultivate the students' innovative spirit and practical ability, to encourage students to actively participate in the activities of scientific research, technological competition, and innovation in practice, the college provides innovative credit assessment per semester for students. Innovation credits undergraduate to
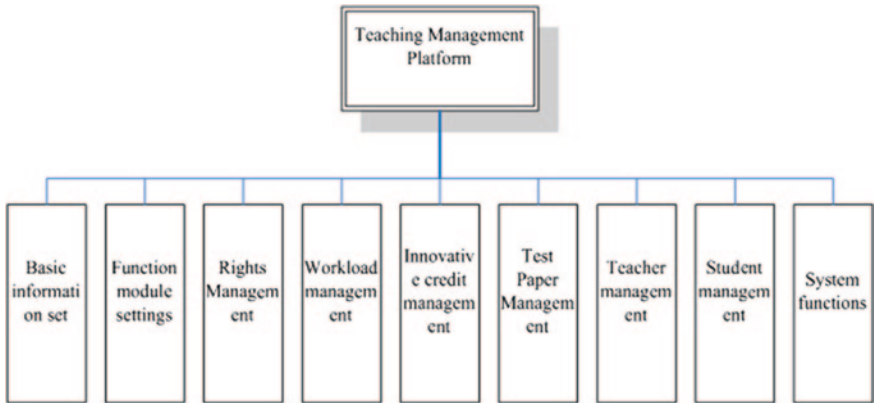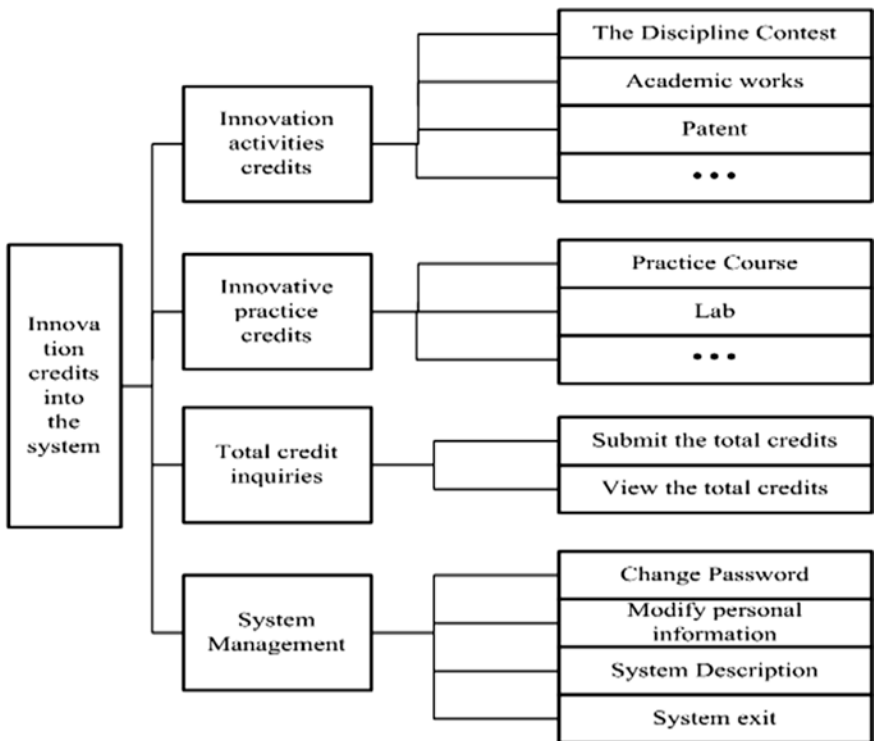
Fig. 1.1 Teaching management system

Fig. 1.2 Innovative credit system

graduate qualifications necessary conditions for the recognition of credits must submit an application by the students themselves identified by the dean of the college in office in December of every year reported Office of Academic Affairs review the record. In order to facilitate innovative credit reporting, audit and statistics, under

the conditions of the existing teaching resources and platform resources, add innovation credits entry subsystem. The system consists of four modules; credits entry module of innovative activities and innovative practice program entry module are the important modules of the system, and points to students through these two modules can be reported to the activities of innovation credits. The total credits of view, submitted that the module is used to submit and view the total credits. In the management platform, you can modify the calculation of parameters of each innovation credit as well as entry instructions and statistics reported by the audit student credits. The design module of the platform is shown in Fig. 1.2 [5].

1.7 Demand Analysis

1.7.1 User Interface Requirements

User interface, depending on the circumstances meet the following basic principles on the basis of flexibility.

Style: the user interface requirements of households and Microsoft Windows product style and operating practices are appropriate to imitate the style and operating habits of the mainstream version of Outlook Express, Internet Explorer, and Office products: standard display information to maintain consistency: If the font The size of the V word, the same color, style, standard style, background color or transparent surface for the system button.

Layout: same window or dialog box control in the tab order literally from left to right, top to bottom; standard dialogs have a default button or the Cancel button.

Shortcut keys: the use of high-frequency operation to set the keyboard shortcut: the specific shortcut keys set slightly.

Error message display standards: the message to error description clearly and accurately; constructive message to be given appropriate to avoid the error occurs.

1.7.2 The General Interaction Principles

1. menu selection, data display, and other features should be used in a consistent format;
2. to provide meaningful feedback; the implementation of large destructive action for confirmation before;
3. allowed to cancel most operations on the data entry;
4. reduce the amount of information must be in the action between the memory;
5. to improve efficiency in the dialog, moving, and thinking;
6. allows the user to non-malicious errors, and the system should protect themselves from damage to the fatal error:

According to the functions of the action.

7. Classification and click here to arrange the screen layout; designers should be reasonable to improve the command and action organization within the cohesion.
8. Provide the help mechanism.

1.7.3 Technical Requirements

Data Integrity (Data Integrity Design Goal): The data in the database are entered from the outside world, while the input of the data due to various reasons will enter an invalid or an error message occurs. Ensure that the input data required to become a database system, in particular, is the primary concern of the multi-user relational database system. Should prevent the database does not meet the semantic requirements of data and to prevent the input and output of the error message is caused by an invalid operation or error message put forward. Data integrity is divided into four categories: entity integrity, domain integrity, with reference to the integrity of user-defined integrity. The back-end database for the project must ensure that this four types of integrity. The contract information relating to the business of economic relations, the committed transactions need to guard against loss of multiple copies in order to enhance system reliability, data, and copy and the original data [6].

Reliability Design Goal: First of all, the system requests made by the business response must be correct; is in operation within the required time, the system continuously available overall, the business logic processing, need to capture may be a variety of abnormalities [7].

Performance Design Goal: The number of users using the system of about 1,000 people need to make a timely response to service request.

Security Design Goal: It includes two aspects: confidentiality and effectiveness. The data need to be kept strictly confidential to prevent illegal way to view, modify, or delete. In addition, despite the legitimate user to login, if you do not have permission to operate, these functions must not perform their operations. To achieve the above requirements, you must apply a suitable development platform; application development goal is to create the best software in the shortest possible time. Visual Studio .NET integration on the Windows NET Framework support provides a full-featured and powerful tool, able to meet even the most complex requirements of the development team, while still available for individual developers to improve development efficiency [8].

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