Research and Developing of Evaluation Information System Using B/S Structure and SQL Server Technology

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Abstract. The paper analyses the status quo of the construction of the teaching staff of undergraduate colleges and universities in Jilin Province, expounds the irrational structure of the teaching staff, the low professional autonomy of teachers, the instability of the teaching staff, the lack of humane care for teachers in society and schools, and the teaching staff. Poor management and other issues. Based on the actual needs of undergraduate colleges in Jilin Province, this thesis uses the .NET framework, ASP.NET and SQL Server technology to develop a university teacher management information system based on the B/S structure. The system includes basic teacher file management, discipline construction management, the functions of teaching and research management, scientific research management, faculty management and system management have reached the goal of networked and electronic management of the school’s teacher information. The purpose of the thesis is to improve the construction level of teachers in private colleges and universities in Jilin Province.

1. Introduction

The teacher groups and individuals of undergraduate colleges and universities in Jilin Province are actively developed. "The development of teachers in undergraduate colleges and universities in Jilin Province is the key to the reform and development of higher education and the basis for the quality construction of universities. Studies at home and abroad show that the development of teaching ability is the key to the development of teachers in undergraduate colleges in Jilin Province. Teaching ability is a teacher's basic ability as well as a teacher's professional ability [1]. It directly affects the teacher's teaching behaviour and teaching effect, and is closely related to the school's education and teaching quality. The evaluation of teacher's teaching ability is an important means to find an entry point for the development of teacher's teaching ability.

Establishing a teacher's teaching ability evaluation system to carry out teacher's teaching ability evaluation has a variety of excellent functions: one is the goal-oriented function [2]. Establishing a teacher’s teaching ability evaluation system can allow individual teachers or organizations to understand and master the standards and requirements of teachers’ teaching ability, and help teacher organizations (schools, departments, etc.) to carry out teacher teaching ability training and training in a purposeful, planned, and step-by-step manner. At the same time, it promotes individual teachers to consciously...
improve their teaching ability and improve the structure of teaching ability according to the standards and requirements of teaching ability. The second is the evaluation function. The establishment of a scientific evaluation system and evaluation method for teachers' teaching ability will help to enhance the reliability and validity of the evaluation of teachers' teaching ability, and realize the scientific evaluation of teachers' teaching ability. The fourth is the feedback function. The implementation of scientific teaching ability evaluation can objectively reflect the status quo of teachers' teaching ability [3]. Through timely feedback of the results of teaching ability evaluation, it will help strengthen teachers' teaching self-confidence and enterprising spirit, stimulate teachers' teaching potential, and encourage teachers to teach. Bold attempts in content, teaching methods and teaching methods; help teachers test their teaching abilities, diagnose teaching problems, and continuously improve their professional qualities and vocational abilities through reflection and improvement. To achieve rapid growth and development in teaching; it also helps schools to grasp the current situation and level of teachers' teaching ability, so as to formulate targeted teachers' teaching ability improvement plans, organize effective teacher teaching ability training and training, and continuously improve teachers' teaching Ability and teaching level to continuously improve the quality of school education and teaching.

Therefore, our evaluation of the teaching ability of teachers in undergraduate colleges in Jilin Province is an inevitable requirement for the teaching development and the improvement of education quality in Jilin Province undergraduate colleges. Based on this complete teacher evaluation system, it is necessary to implement online evaluation of trainees [4]. The personnel of the training centre upload the relevant information of the training base and the relevant information of the trainers according to the opening of the training base, and can monitor the evaluation results in real time to form a document. In view of the actual situation of the evaluation, the system adopts advanced development technology to realize the research and development of the evaluation system, taking into account the real situation of the concurrent number of online operations.

2. Design of the evaluation system for the faculty of undergraduate colleges

2.1. Overall design

According to the idea of "high cohesion, low coupling" in software design, and at the same time, to overcome the difficulty of mixing interface part code, business logic code and database operation code in the two-layer structure, which leads to the difficulty of software modification, maintenance and upgrade [5]. In the design of software architecture, it is recommended to use a layered structure, that is, the presentation layer, the business logic layer and the data access layer.

As shown in Figure 1, the entire system is divided into six modules, namely teaching and research, faculty, discipline construction, basic teacher files, scientific research, and system management [6]. The functions of the teacher’s basic file management module include the display of the teacher’s basic files and the query, add, modify and delete operations on the teacher’s basic files; the function of the discipline construction management module includes the display of subject information and the query, addition, modification and Delete operation; the functions realized by the teaching and research management module include the display of information related to teaching-related research topics, published papers, published works and awards, as well as query, add, modify and delete these information; scientific research management module The realized functions include the display of information related to the teacher’s scientific research, such as research topics, published papers, published works, and awards, as well as inquiries, additions, modifications and deletions of this information; the functions realized by the teacher team management module include all teachers in the school The display of the list and contact information; the functions realized by the system management include operations such as system settings, user management, and condition query.
2.2. Database analysis and design

Data processing is inseparable from the data table. The design of the data table not only takes into account the commonality, but also minimizes the redundancy, which mainly depends on how to establish the connection between the table and the table. The selection relationship between classes, courses and teachers involved in this system is too many-to-many relationships. For example: between classes and courses, for a class, there are multiple courses; conversely, the same course may have multiple classes [7]. Another example: between a course and a teacher, multiple teachers can take the same course; and the same teacher can take multiple courses. This many-to-many relationship cannot be established in the data table. A many-to-many relationship must be split into two one-to-many relationships. To this end, we have added the "Department" field, using the uniqueness between the course and the department, between the teacher and the department, to establish a two-to-many relationship between the course and the teacher, press "class, "Curriculum, teacher" sequence, the class determines the course, the course determines the department, and the department determines the input selection range of the teacher, which solves the design problem of the data table. The information of classes, courses, teachers, and training sessions can be used not only for report output, but also for composing related file names. Figure 2 shows the E-R diagram of the faculty evaluation.

Figure 1. Dependencies between the three-tier structure.
Figure 2. E-R diagram of teacher evaluation.

Teacher's basic file information table: (including the teacher's basic file information, such as: teacher number, name, user authority, gender, resume photo, mobile phone number, etc.), the design results are shown in Table 1. Discipline information table: (store the basic information of the discipline, including the teacher's name, course name, teaching major, course hours, number of courses, work content, etc.), the design results are shown in Table 2. Teaching information table: (store teaching and research information, including research topics, published papers, published works and awards, etc.), the design results are shown in Table 3.

Table 1. Teacher's basic file information table.

| Column name  | Type of data | Can it be empty | Description       |
|--------------|--------------|-----------------|-------------------|
| Id           | Digital      | Non empty       | Teacher ID        |
| User id      | Text         | Non empty       | Teacher's name    |
| User power   | Digital      | Non empty       | User rights       |
| Sex          | Text         | Non empty       | Teacher gender    |
| Age          | Digital      | Non empty       | Teacher's age     |
| College      | Text         | Non empty       | College           |
| Class        | Text         | Non empty       | Department        |
| Login Times  | Digital      | Non empty       | Number of logins  |
| Url          | Text         | Non empty       | Resume photo      |
| Upload time  | Datetime     | Non empty       | Upload time       |
| Email        | Text         | Non empty       | E-mail            |
| Tel          | Text         | Non empty       | Cellphone number  |
Table 2. Subject Information Table.

| Column name | Type of data | Can it be empty | Description          |
|-------------|--------------|-----------------|----------------------|
| Userid      | Text         | Non empty       | Teacher's name       |
| Lesson Name | Text         | Non empty       | Course Title         |
| S class     | Text         | Non empty       | Teaching Major       |
| Period      | Digital      | Non empty       | Course hours         |
| Persons     | Digital      | Non empty       | Number of courses    |
| Work Content| Ntext        | Non empty       | Work content         |

Table 3. Teaching information table.

| Column name        | Type of data | Can it be empty | Description                  |
|--------------------|--------------|-----------------|------------------------------|
| Userid             | Text         | Non empty       | Teacher's name               |
| Jketi Name         | Text         | Non empty       | Subject name                 |
| Jketi Money        | Digital      | Non empty       | Project funding              |
| Jketi Froming      | Text         | Non empty       | Source topics                |
| Jpaper Title       | Text         | Non empty       | Essay topic                  |
| Jpub Journal       | Text         | Non empty       | Publication                  |
| Jlunzhu Name       | Text         | Non empty       | On the famous title          |
| Jlunzhu Pub        | Text         | Non empty       | Publishing house             |
| Jprise Name        | Text         | Non empty       | Award name                   |
| Jproject Name      | Text         | Non empty       | Name of the winning project  |

2.3. System key technology

2.3.1. **Realize data upload and download combined with rollback technology.** When uploading data, when there is repetitive data, some of the data is uploaded successfully, and the remaining data cannot be uploaded after an error occurs, but the user cannot judge how much data is currently uploaded successfully and how much data has not been uploaded successfully, resulting in data appearing in the system the upload is incomplete and wrong [8]. The above problems can be solved by using rollback technology. Rolling back is to bring the data back to the specified (or last) snapshot point. The ACID feature of the transaction will ensure that the operations within the transaction are completed, and any problem in any step will be rolled back to the state before the transaction is executed; at this time, the granularity of the rollback is the transaction. When the granularity is the entire database, it is equivalent to a backup restore.

2.3.2. **Multi-threaded locking technology solves concurrency problems.** When most training members log in at the same time for evaluation, considering the issue of concurrency, at the data access layer, through monitoring the code running time, the key code is locked to solve this problem.

2.3.3. **Application of DIV+CSS technology.** According to the business logic of the teacher evaluation system, use DIV+CSS layout technology to design a web interface with better user experience. DIV+CSS layout technology mainly uses box (box model) to replace traditional table cells. By writing XHTML code, multiple box models represented by DIV elements are created [9]. At the same time, by writing CSS style codes, CSS styles are created to set the size and position of each box model, so as to realize the overall layout structure of the web page.

3. System monitoring and analysis
The processing results of this system are output in two forms, one is output in the form of a table (display and print); the other is output in the form of a bar graph (display and print). The results are provided to supervisory leaders and relevant teachers’ departments, so that supervisory leaders and relevant
departments can analyse and compare vertically and horizontally, and take measures to improve teaching and improve teaching quality.

4. Conclusion
The characteristic research on the construction and development of teachers in undergraduate colleges and universities in Jilin Province is based on the essence of Chinese economic and cultural development. While learning and absorbing the experience of foreign private higher education teachers in construction, it theoretically explores the modernization and characteristic of the teaching team of private universities. The core and external requirements of development and development, and from a practical point of view, the construction of a distinctive teacher team and a long-term mechanism for development have been constructed, so as to establish a more reasonable, effective, and sustainable teacher team. The road is far away. The teacher training evaluation system of Jilin Province undergraduate colleges and universities based on the B/S three-tier structure adopts more advanced mainstream technology to realize the development of the system. Taking the teacher training system of Jilin Province undergraduate colleges as an example, the system has been used in the actual centre. It is stable and has high operating efficiency. Its design ideas and key technologies can be extended to other teacher training evaluations.

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