# Research on Teaching Quality Monitoring System Based on B/S Archite cture: A Novel Approach

CHEN ZhiYong[1, a]

[1]Qinghai Normal University, Xining 810008, China

[a]chenzhiyong@126.com

**Keywords:** Teaching Quality Monitoring System; B/S Architecture; Teaching Management

**Abstract.** With the rapid development of Internet technology and applications, network integration into all aspects of people's lives, the computer network has become a powerful force for social and economic development, the use of network information technology to achieve national economic and social information Based on B. / S to develop teaching quality monitoring system that can solve informative educational administration, information gathering difficult feedback lag, low accuracy of the information bottleneck, in order to fully realize the network of educational administration, automation, digitization, so that efficient and orderly educational administration performed.

## Introduction

Information technology is an important strategic step for school development, is to improve the teaching, research and management of essential supporting conditions. Especially now that the process of rapidly advancing information technology in the education sector, the focus has gradually shifted from focusing on the construction of an integrated network information platform integration, network services and other aspects of intelligence and personality, modern education management is the increasing use of Internet-based technology to achieve the development trend of information technology [1-2]. With the deepening of education reform, and comprehensively promote quality education and expanding the size of school, teaching resources are increasingly strained, teaching how to make full use of scarce resources, and improve utilization of resources, doubling the amount of information processing, has become the focus of the management functions of common concern.

With the network technology in teaching and school management has also been the promotion and popularization, we can take advantage of the favorable conditions and resources, fully integrated database system, technology, network communications, multimedia and other related information processing technology, construction teaching quality monitoring system development based on B/S of teaching quality monitoring system to monitor the quality of teaching problem solving, management can reduce the workload of teaching staff, students and teachers can simplify the work of teachers can fill out a transcript becomes convenient, corresponding paper analysis becomes intelligent, and students can also remotely evaluating teaching and remote enrollment by WAN, greatly improving the quality and flexibility of elective monitoring, but also can effectively reduce the losses caused by operators, in seeking to make the system fully functional, efficient application of the Senate better for my school, teaching management, teaching quality monitoring work service, to improve the teaching management departments at all levels, quality, efficiency, and by experimental verification of this system, the test results achieve the purpose of the design. Based Implementation B / S of teaching quality monitoring system is simple, practical, and has good application value.

## The related theory and technology analysis

B / S mode Architecture. Because of these deficiencies C / S structure, we can add in the middle of the traditional C / S structure of the layer, the client is responsible for the original function to the middle layer to achieve, the middle layer is the Web server layer. Thus, the client is not responsible

for the original data access, we need to install the client browser on it. The original server as the database server, install the database management system and create a database on the database server. Web server role is to access the database, and passed to the browser via Internet / Intranet network [3].

B / S mode uses a three-tier architecture, namely the client, server, and database server. Clients simply use a browser to access the server, transaction processing on the server side, data processing by the database server, so it can be carried out through the network remote data access. But only in the B / S mode cannot be directly controlled object implementation and data communication. Implementation and controlled object data communication system for remote real-time monitoring system requires the use of four-story structure, namely the presentation layer, functional layer, data layer and control layer based on B/S mode [4-5]. As shown in figure 1, the three-tier architecture based on B/S on the increase in service level control, used to implement the Web server to communicate and control the controlled object. But essentially there is a difference. Here not only increase the control layer, and the functional layer and data layer functions have also been expanded. Excellent characteristics of this architecture has both B / S mode, increased control services, full use of existing network resources and industrial site resources, and make the two together organically, reaching on B / S remote real-time monitoring mode.
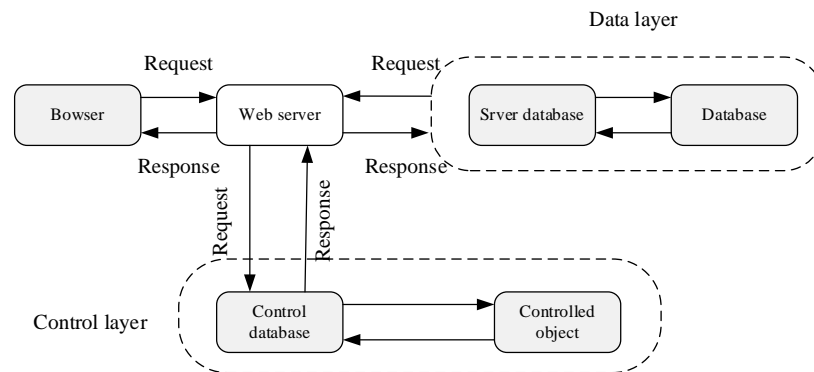


Figure 1. The structure of three-layer B/S monitoring system

Presentation layer, functional layer, data layer and control layer has some linkages have relative independence, the layers are connected via Internet / Intranet, information communication via HTTP protocol and serial communication protocol. Presentation layer, as the client side of the application, including the display logic of the system. To access the database or control layer by layer function, display the response information returned by the Web server. Functional layer, as a Web Service application server, including transaction processing logic of the system. Responsible for the data transfer layer and the data layer and control layer. Specific performance or the control server accepts a user request, to execute the corresponding application; or connect with the data layer, the data processing request made to the data layer, the data layer processing to send the results to the requester. Data layer, representing the physical databases and data processing applications, including data processing logic system. It is primarily functional layer accepts requests to the database, the database for query, add, delete and other functions, and the results are returned to run the functional layer. Control layer, located in the control server, comprising a control logic system. It is mainly used to control the controlled object, the controlled object to send control information and receiving controlled object request information or send a request to the controlled object data request to the functional layer, and sends the results to the controlled object.

## Establish indicators of teaching quality monitoring system

In full, full, comprehensive philosophy as a guide, teaching quality monitoring system should be able to achieve the following three functions: teaching quality monitoring point data collection, assessment of teaching quality and teaching quality data computer statistical analysis [6]. Forms automatically generated and total quality control management decision support teaching quality

monitoring system consisting of three parts, with a scientific, systematic and operability characteristics, and each part is relatively independent, but interrelated, according to the quality of teaching Analysis of the monitoring system of teaching quality monitoring system to establish the index system, as shown in Figure 2.
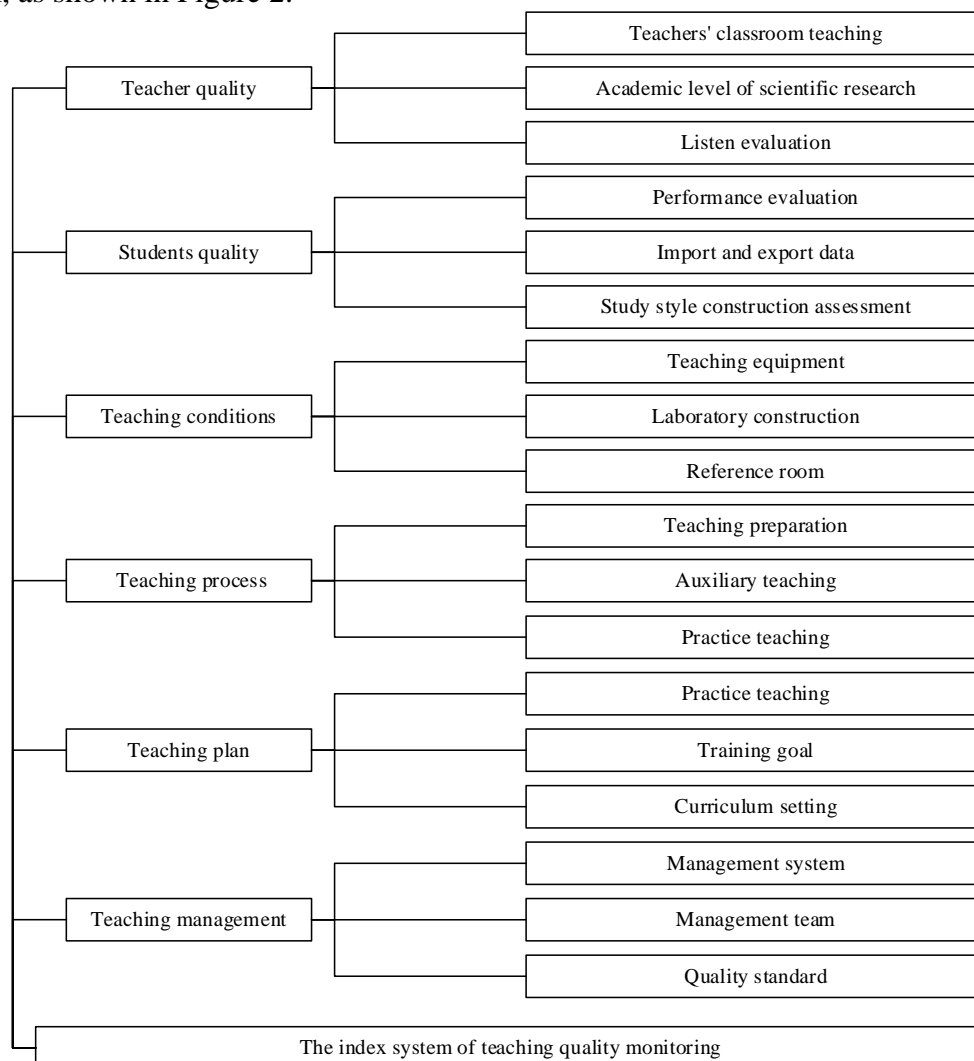


Figure 2. The index system of teaching quality monitoring

Teaching quality monitoring data collection points: teaching resources, including data acquisition data quality teaching staff, teaching facilities, data, financial data teaching, teaching techniques of data, materials data; data collection activities including leadership training at all levels of the importance of teaching data, teaching and regulations data perform data teaching plans, teaching theoretical data, practice teaching data, Tutor jobs data, the hidden curriculum teaching data; learning activities including student data distribution data acquisition, data quality of students, study routine inspection data, learning data; data management activities The collection includes the management of condition data, health data management team, the management process operational data; the state of export quality data collection, including newborn human science data, data graders graduate, graduate employer feedback data.

Teaching Evaluation: evaluation of teaching, including teaching quality assessment, curriculum assessment, professional assessment, the school level evaluation, assessment of teaching conditions; assessment of students, including academic assessment evaluation, ideological and moral assessment, vocational skills training evaluation; teaching management The assessment includes teaching management assessment Department, the Department of Teaching Management assessment, the school self-evaluation of teaching management; evaluation of teaching effectiveness, including student test survey results, thesis topics and achievements, the employer and society.

Statistical analysis of teaching quality and teaching quality of automatically generated tables Monitoring Decision Analysis System: SPAA statistical analysis software package for teaching quality data; automatically generate a table of data quality management education; teaching quality management data table print; teaching quality dynamic feedback mechanism ; teaching quality information processing and decision-making control.

**Teaching quality monitoring system design based on B / S structure**

Break through the information technology departments, the cumbersome nature of the transmission of information between the various departments, repetitive, so that the information in the most efficient electronic means between upper and lower schools, between schools and teachers, between teachers and students passing for schools teaching and research services. This will improve the schools and departments in large part, the transparency of the work of the various departments, reduce office costs, saving office hours, thus improving efficiency, which for democratic decision-making and scientific decision-making schools are very important. With the development of education and science and technology, higher education reform is imperative, along with flexible educational system, the deepening of the reform of the credit system, many issues need to be addressed, such as enrollment, student exchange, and so are unable to check the results by hand using traditional way to resolve. Therefore, online enrollment, online examinations, online query results, online teaching, online Q & A, online experiments and so many non-traditional modes of teaching and management, to the full application of computer-based software system network to achieve. Based on B/S structure for teaching quality monitoring system launched design, its frame shown in figure 3.
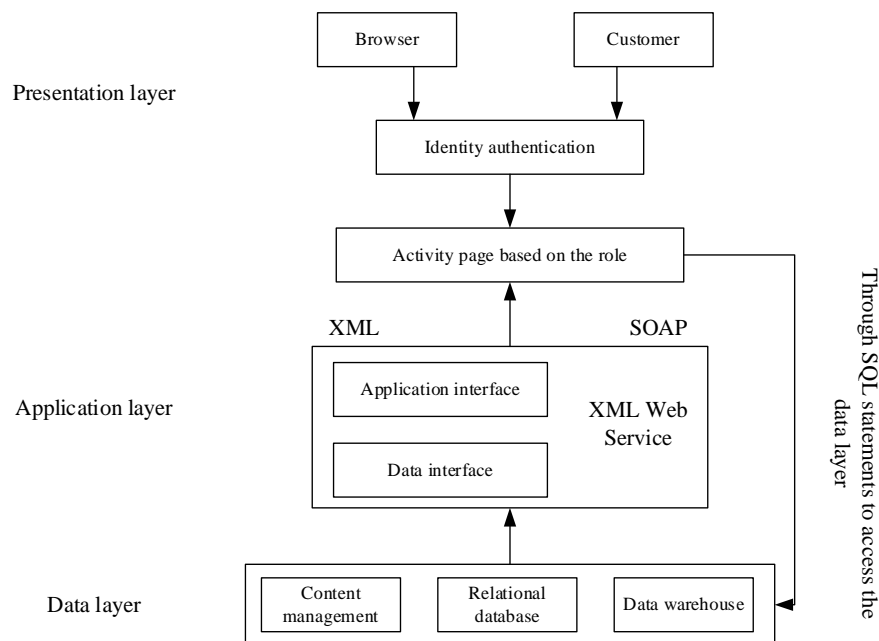


Figure 3. The frame of teaching quality monitoring system design based on B / S structure

The basic system management decisions based on educational administration department (Office of Academic Affairs, Administration Division of teaching, etc.) as the control center for all of the data involved in the centralized and unified management. Other departments, as auxiliary management, under the authority of the competent authorities of the data can be input, modify, query, statistics, print and other operations. Such educational administration department will be most of the work (such as data entry and school change, performance management, teacher management, workload computing, teacher assessments, lesson plans, teaching plans, student enrollment, entry and query performance, curriculum inquiry, examination queries, etc.) decomposition to the grass-roots units, enabling timely and efficient data processing. Data

processing model of the system is based on teaching plans for the center, combined student enrollment data, teacher data automatically commence data, materials planning data and automatically presented to the students in course selection, automatically generate a list of results entry, arranging data and automatically generate test arrange data. Standardized educational management business approach, improve processing efficiency, providing quality services to teaching management, providing a solid foundation for service innovation, providing comprehensive support for management decisions.

## Conclusion

As information management and quality monitoring systems increasingly large scale construction, development coordination and system maintenance will be more cumbersome, in the construction and development process, and gradually began to introduce some software engineering theory had been formed and some new methods and technology, can effectively avoid the construction of the crisis, reducing the failure to improve the quality of construction. This paper presents a flexible way to achieve professional, a better solution to the current structure of the program, such as page-based teaching in educational management system requirements should be clear, high efficiency, ensure data integrity, consistency, repeatability modules, scalable, as well as the flexibility to customize queries and many other issues, but also can be applied to similar applications based online teaching system.

## Reference

[1]  Taylor J, Roehrig A D, Hensler B S, et al. Teacher quality moderates the genetic effects on early reading[J]. Science, 2010, 328(5977): 512-514.

[2]  Lan H. Web-based rapid prototyping and manufacturing systems: a review[J]. Computers in Industry, 2009, 60(9): 643-656.

[3]  Ferrer A J, HernáNdez F, Tordsson J, et al. OPTIMIS: A holistic approach to cloud service provisioning[J]. Future Generation Computer Systems, 2012, 28(1): 66-77.

[4]  Postolache O A, Girao P M B S, Mendes J, et al. Physiological parameters measurement based on wheelchair embedded sensors and advanced signal processing[J]. Instrumentation and Measurement, IEEE Transactions on, 2010, 59(10): 2564-2574.

[5]  Dai Q Y, Zhong R Y, Wang M L, et al. RFID-enable real-time multi-experiment training center management system[J]. International Journal of Advanced Science and Technology, 2009, 7: 27-48.

[6] Mollers I, Jager D, Gaudino R, et al. Plastic optical fiber technology for reliable home networking: overview and results of the EU project pof-all[J]. Communications Magazine, IEEE, 2009, 47(8): 58-68.