

# Management Efficiency Evaluation System Based on Multi-Permission and Multi-Information

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**Abstract:** In the context of the digital era, campus digitization is rapidly becoming a core development path in the field of education. Challenges such as extended development cycles, high costs and high technical thresholds exist in the process of campus digitization, so the Teacher Management Effectiveness Evaluation System constructed by using Ruoyi's low-code development platform, combined with the evaluation system of precision, refinement, and delicacy (referred to as the "Three Refinements"), can effectively solve these problems. Especially in terms of authority control and collaborative office, the system can help universities to rapidly optimize business processes and provide practical guidance and reference for campus digital transformation. Through this study, we aim to improve the efficiency and quality of teacher management and promote the campus digitalization to a deeper development.

**Keywords:** Digital campus; Low-code development; Teacher management; Effectiveness evaluation; Permission control

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## Introduction

The digital transformation of campuses refers to the process of digitally reforming and upgrading various aspects of campus operations, such as teaching, management, and services, by leveraging modern information technology. It constructs a digital space that encompasses multiple domains including internal information integration, digital teaching, and peripheral affair management within the university. The objective is to enhance the quality of education and teaching, improve management efficiency, and elevate the standard of campus services. This initiative goes beyond merely digitizing and informatizing existing models; it places greater emphasis on business integration. By taking user needs as the starting point, it enables the joint construction and sharing of campus resources, thereby providing diverse services for teachers and students. Currently, in the field of higher education, universities across the board have established local area networks (LANs) on their campuses and implemented Management Information Systems (MIS) respectively, which has significantly improved the efficiency of daily school management<sup>[1][2]</sup>. Management systems are built to enhance teaching quality, and school regulations play a crucial role in talent cultivation. Establishing a scientific and precise evaluation mechanism is an important guarantee for advancing campus development<sup>[3]</sup>. The traditional lecture-based method, as the primary teaching approach, has limitations, making it urgent to introduce digital platforms to enrich and innovate teaching methods<sup>[4]</sup>.

## 1. System Overview

Tailored to the actual needs of evaluating the management effectiveness of teachers in current schools, this system enables the assessment of teacher performance based on objective standards and data. It avoids the interference of subjective factors and enhances the accuracy and fairness of the evaluation. Through a precise, meticulous, and sophisticated evaluation system, standardized evaluation criteria, and a systematic evaluation process, the system achieves objective assessment and grading of teachers' work efficiency and competence. Meanwhile, it quantifies processes, covering links such as decision-making, organization and initiation, specific implementation, inspection and supervision, and result evaluation. Additionally, it supports the formulation and execution of

processes through backup plans, standards, supporting evidence materials, and risk prevention plans.

## **2. Related Technologies**

### **2.1 Introduction to RuoYi Low-Code Platform and Front-End Technologies**

RuoYi Low-Code Platform is an open-source enterprise-level low-code development platform. While offering a richer set of functions and components, it also boasts strong customization capabilities and flexibility, enabling rapid development for various business scenarios<sup>[5]</sup>. RuoYi-Vue3 is a RuoYi backend management system template based on Vue3. It integrates a variety of commonly used functions, such as permission management and log recording, which accelerates the development process. As a front-end framework, Vue3 is renowned for its lightweight nature and high performance. It provides a responsive and componentized view layer, making front-end development more modular and maintainable. Vue-Router, as the official routing manager for Vue, allows the construction of Single-Page Applications (SPAs) and enables page-level navigation. Element Plus, an extension for Vue 3, offers a comprehensive set of UI components designed to assist technical teams in quickly building professional-grade user interfaces. Meanwhile, Axios, as a Promise-based HTTP client, greatly facilitates the implementation of asynchronous data exchange both on the client and server sides.

### **2.2 Backend Technologies**

The Spring Boot framework significantly simplifies the system initialization process through its built-in default configurations. An application can be launched either by directly executing the main method of the entry class or by building a JAR package and running it using the `java -jar` command. Adhering to the design philosophy of “convention over configuration”, this framework allows developers to directly adopt its preset configurations in most scenarios [6]. As an efficient Object-Relational Mapping (ORM) framework, MyBatis simplifies the writing of SQL statements by providing XML or annotation-based approaches, thereby enhancing the flexibility and maintainability of database operations. Spring Security is a powerful security framework that offers authentication and authorization functionalities, ensuring the security of applications. JSON Web Token (JWT) is a well-defined open standard that enables the secure transmission of JSON-formatted information between different services. In this system, JWT is used for user identity authentication and secure information exchange, which enhances the system’s security and the efficiency of the authentication process.

### **2.3 Technologies Used for Deployment**

After being packaged by Vite, static resources are deployed to the Nginx server. Nginx has become the first choice for static resource services due to its characteristics of high performance, high reliability, and low resource consumption. By configuring Nginx’s reverse proxy and load balancing functions, efficient distribution of static resources and optimization of access are achieved.

MySQL is selected as the system database. It is a widely used open-source Relational Database Management System (RDBMS), renowned for its high performance, high reliability, and ease of use. In this system, Redis is used as a key caching tool to improve the system’s response speed and scalability. This open-source in-memory data storage system can store various data structures, including but not limited to strings, hashes, lists, and sets, which greatly enhances the system’s data caching performance.

### **2.4 Application Advantages of RBAC in the Teacher Management Effectiveness Evaluation System**

By implementing the Role-Based Access Control (RBAC) model, this system provides a flexible permission control solution for teacher management effectiveness evaluation. The RBAC model realizes its functions through three main steps: users are assigned roles, roles are granted permissions, and users obtain access rights through their roles. This process not only restricts users’ access to system functions and ensures data security but also optimizes the permission management process.

RBAC enables consistency and repeatability in permission assignment, thereby improving the work efficiency of school leadership teams at all levels. Without RBAC, system administrators would need to configure user access or object permissions one by one. If administrative staff decide to assign a user role access to new resources, they only need to adjust the permissions of the relevant role instead of reconfiguring permissions for each individual. Additionally, when teachers take on new job responsibilities, their permissions can be updated in a timely manner by changing their roles or assigning new roles.

The RBAC model can provide a more personalized experience by customizing roles and permissions for different user groups. It supports adjusting the association between roles and permissions at runtime, allowing the system to flexibly respond to various management needs and optimizing the process of dynamic permission adjustment. RBAC adheres to the Principle of Least Privilege (PoLP), a core principle of zero-trust security. This means that teachers are only granted the permissions necessary to complete their work. Restricting access in this way reduces the risk of data leakage.

### **2.5 Advantages of Integrating OA System with Project, Process, and Evaluation Modules**

As shown in Table 1, the centralization of project management is realized in the OA system, enabling unified management of project information, progress, and scores. This centralization not only provides project leaders and team members with convenient access to and update channels (ensuring projects proceed as planned) but also significantly enhances the transparency and accessibility of information.

Table 1 Project Timeline

Process Step	Role/Action
Initiate Project	-
Scheme Review	Reviewer A Approve Scheme
System Automatic Notification	Automatic Notification to Relevant Personnel
Organize and Mobilize	Organize and Mobilize Relevant Personnel
Upload Implementation Scheme	Initiator Uploads Implementation Scheme, Personnel Allocation, etc.
Specific Implementation	-
Inspection and Supervision	Reviewer B Inspect and Supervise Implementation of the Scheme
Result Evaluation	Scorer A Score Each Item of the Scheme
Overall Review	Scorer B Score Each Process Reviewer
Effect Scoring	Scoring Group Verify Whether Each Score is Compliant

Based on the status of the teaching project, the process will automatically notify the corresponding personnel for handling. The introduction of process automation has significantly reduced the time and error rate of manual processing procedures such as approval and reimbursement. This automation not only accelerates the processing speed but also improves work efficiency, thereby saving valuable time resources for the project team. The real-time feedback mechanism of the evaluation module enables the OA system to instantly collect teachers' teaching quality and satisfaction with evaluation opinions, providing teachers with opportunities for self-improvement. This real-time nature offers continuous impetus for the improvement of educational quality. The customizability and scalability of the OA system allow it to adjust project, process, and evaluation modules according to the specific needs of the school. This flexibility is the key to the OA system adapting to the unique requirements of different schools.

### 3. Conclusion

This paper proposes a management effectiveness evaluation system based on the "Three-Precision Evaluation Theory" (precision, meticulousness, and sophistication). Built using a low-code development platform, the system integrates advanced big data and artificial intelligence technologies to achieve comprehensive digitalization and intelligentization of campus management. Through the accurate assessment of teacher performance and efficient integration of resources, the system not only improves management effectiveness but also provides decision-makers with strong data support through intuitive visualization tools. Looking ahead, with the continuous advancement of technology and ongoing optimization of the system, the Three-Precision Management System has the potential to further promote the modernization of educational management and realize more personalized, flexible, and efficient educational services.

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