نظام تغذية رجعية الطالب لتقييم أداء التدريس في عملية التعليم باستخدام نظم إدارة قواعد البيانات

دراسة تجريبية مقدمة لوحدة ضمان الجودة في جامعة السليمانية

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A Student Feedback System for Teaching Evaluation in Education Using Database Management System (DBMS); an Empirical Study for Quality Assurance Unit, University of Sulaimani

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المستخلص:

إن التغذية الرجعية هي من أهم العناصر لتقييم أداء عملية التعليم والتدريس لتوفيرها بيان التعليم الحاصل عليه الطالب من ملاحظات وآراء ومقترحات حول تحسين النظام التعليمي والأكاديمي للدروس و المواد والمناهج المقررة التدريسية. نظام التغذية الرجعية الحالي الموجود في أغلبية الجامعات والمعاهد يعتمد على نظام ورقي روتيني كثيف العمل، غير مرن، غير متزن وكثير الأخطاء. هذا الدراسة اقترحت استخدام نظام جديد للحد من استهلاك كثرة المستلزمات الأساسية والوقت اللازم وعبء العمل الوظيفي للموظفين الذين يتعين عليهم معالجة النماذج المقدمة وتسجيل كافة الملاحظات وإنشاء التقارير الإحصائية المتعددة لأداء عملية التدريس قبل إرسالها إلى وحدة ضمان الجودة لاستعراضها و تقييمها لاحقا باستخدام نظم إدارة قواعد البيانات. وهدفت هذه الدراسة استخدام النظام المقترح لدراسة تقييم الأداء التعليمي في كلية الإدارة والاقتصاد لجامعة السليمانية.

الكلمات المفتاحية: نظام تغذية رجعية الطالب، تقييم الأداء، التقييم الرقمي، تقييم المناهج التدريسية، تحسين تقييم التدريس، نظام إدارة قاعدة بيانات تقييم الطالب، نظم إدارة قواعد البيانات.

Abstract

Feedback is the most important element of evaluation in teaching process as it provides students with a statement of their learning and advice about improving the system. The existing system for teaching evaluation being used at most of the universities and institutions, relies on an inflexible paper system that uses outdated and labor intensive technology. This paper suggests a system to reduce the workloads and time consuming of staff members who must process forms and transcribe written comments before releasing the evaluations for faculty review and generating statistical reports for their progress, also, improve the quality of students' feedback that play the important role to enhance the instructors' performance. This study aims at studying performance evaluation system and its impact on the performance level of academic staff at School of Administration and Economics (SAE).

Keywords: Student Feedback System, Performance Evaluation, Digital Evaluation, Course Syllabus Evaluation, Improving Teaching Evaluation, Database Management System Student Assessment.

1. Introduction:

Evaluation of teaching process provides universities and institutions a basis to prepare and rate the quality of their teaching methods while providing a common understanding of effective teaching and enhance professional practices of educators to positively impact student learning.

Quality of the instructor in the classroom is the most significant feature in a student's academic success. An evaluation questionnaire allows measuring level of students' understanding of a course or the effectiveness of a particular approach to teaching. Questionnaire feedback can be used for a wide range of purposes including departmental reviews, staff confirmation and promotion processes, and performance evaluation and as such, staff members must be able to tailor questionnaires to satisfy their specific requirements.

2. Approaches to Employee Development

There are two approaches, used to develop employees [1]:

2.1. Formal Education Programs

Include off-site and on-site programs designed for the academic's and company's employees, such as employee development programs, including short courses offered by consultants of universities, executive MBA programs, and university programs.

2.2. Assessment

Assessment involves collecting information and providing feedback to employees about their behavior, communication style, or skills. Assessment is most frequently used to identify employees with managerial potential and to measure current managers' strengths and weaknesses. Assessment is also used to identify managers with the potential to move into higher-level executive positions, and it can be used with work teams to identify strengths and weaknesses of individual team members and the decision processes or communication style that inhibit the team's productivity.

3. Feedback

Feedback and counseling are giving a lot of importance in the performance management process. The employee acquires awareness from the appraiser about the areas of improvements and also information on whether the employee is contributing to the expected levels of performance or not [2].

3.1. The role of the feedback

One of the most important conditions is to provide clear, performance-based feedback to employees. Almost 50 years ago, the crucial role of evaluation feedback in the performance evaluation process was emphasized. If participants do not perceive the system to be fair, the feedback to be accurate, or the sources to be credible then they are more likely to ignore and do not use the feedback they receive.

Performance feedback should include information on how to improve performance, along with information about what areas of performance need improvement. The frequency of feedback is also important. The rating scales should focus on results as much as on processes.

Thus, feedback is not only important to individuals but also to organizations because of its potential influence on employee performance and a variety of attitudes and behaviors of interest to organizations [3].

4. What is Performance?

Performance refers to a degree of tasks accomplishment that creates an employee's job. It refers how well an employee likes his/her job.

Performance is often confused with effort, which refers to energy expended, performance is measured in terms of results. For example, a student may exert a great deal of effort in preparing for an examination and still make a poor grade [4].

4.1. Performance Evaluation

Performance evaluation is the process of monitoring, and measuring an individual's performance [5]. Evaluating an employee's current and/or past performance relative to his or her performance standards [6].

5. Database

A shared collection of logically related data and its description, designed to meet the information needs of an organization [7]. Database systems are designed to manage large bodies of information. Management of data involves both defining structures for storage of information and providing mechanisms for the manipulation of information. The database system must ensure the safety of the information stored, despite system crashes or attempts at unauthorized access. If data are to be shared among several users, the system must avoid possible anomalous results [8].

5.1. Database Management System

A database management system (DBMS) is a software package with computer programs that control the creation, maintenance, and use of a database. It allows organizations to conveniently develop databases for various applications by database administrators (DBAs) and other specialists. A DBMS allows different user application programs to concurrently access the same database. DBMSs may use a variety of database models, such as the relational model or object model, to conveniently describe and support applications. It typically supports query languages, which are in fact high-level programming languages, dedicated database languages that considerably simplify writing database application programs [9].

DBMS is a complex system that allows a user to do many things to data, as shown in figure (1). From this figure, it is evident that DBMS allows user to input, share, edit, manipulate and display the data in the database. Because a DBMS allows more than one user to share the data, the complexity extends to its design and implementation [10].

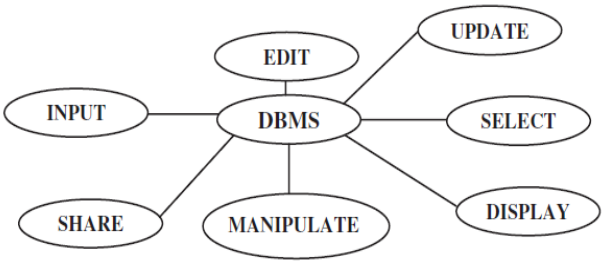

Figure Number (1)

Capabilities of database management system

6. Current System

The current system is a paper-based system, which required considerable administrative effort for collecting data, analyzing, archiving and distribution of results to academic managers and instructors in a timely manner. This system counts many problems as printing, sorting, and collating of evaluation instruments, assigning faculty codes to maintain confidentiality of data, preparing the evaluation schedule, determining the evaluation venue, and identifying and orienting the proctors for faculty evaluation. During this stage, data inconsistency and redundancy were a common concern since a faculty record can be encoded several times using

different faculty codes. This system is complex, inefficient, and very costly. The cost of printing the instruments, and the results of the evaluation as well as the cost of manpower temporarily assigned to help during the administration of evaluation and processing of data is very high. Data accuracy and integrity is highly questionable because of the possibility of errors while encoding the student paper evaluation to the computer for processing.

7. Student Feedback system

The Student Feedback system is designed to considerably reduce staff workload. It stores data in database automatically and present in a reports to review on the system.

The features of present system include:

- Add, edit or delete any necessary information used for measure the evaluation.
- Access the system only by principal, head of department, coordinator and students with the use of username.
- Anonymous feedback by hiding register numbers of the students in the report, which gives more confidential to them.
- Permit the user to use the system for a particular time for a specific course.
- Help developing courses by clustering analysis of the result which made by focus on instructors strengths, potentials, and weaknesses.
- Print the results without waste paper that filled by users.
- Detect the strength and weakness points of the instructors in the courses in order to give the appropriate teaching load to instructors.
- Providing the historical teaching performance evaluation of faculty members for several semesters.
- Providing the college-wide summary of teaching performance evaluation to help the administrators plan for the faculty training programs.

7.1. System Implementation and Design

The implementation phase is the part of building any system, in this paper a system for student feedback for evaluating academic staff members was implemented to measure the performance of skills and capabilities of instructors at the University of Sulaimani at school of Administration and Economics.

7.1.1. Key Technologies

Several software tools were used in this paper. The system was based on Client/Server technology. The database technology included MS-Access with Visual Basic for Application (VBA) programming language as view side, Structured Query Language (SQL) was also used to call and manipulate data. The method of database technology used is Splitting the Database method. The Back-End of the database located on the server side and the Front-End of the database, located on client side as shown in figure (2).

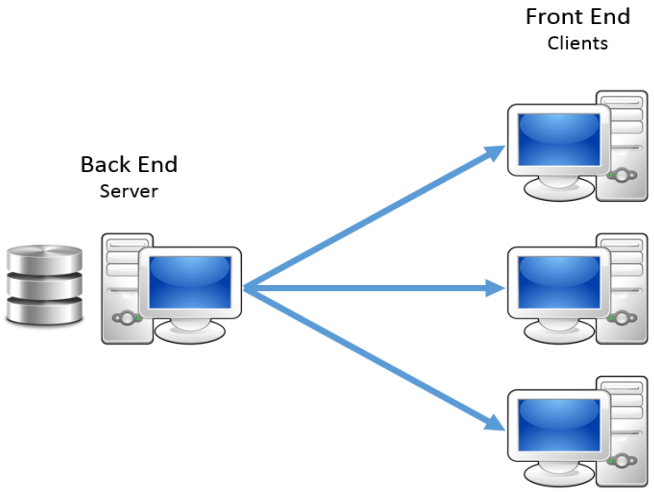

Figure Number (2)

Splitting the Database

7.1.2. Database Structure

The database is the most important part of the system where some of their tables are shown below:

Table (1) shows the Student table, includes these fields: ST_ID, ST_User name (Primary Key), and ST_Password, that stores the Students login information.

Table Number (1)

Student Table

Field Name	Description	Data Types
ST_ID	Identification of	Number
ST_Username	User Name	Text
ST_Password	Student Password	Text

Table 2 shows the Subject table, includes these fields: Sbj_ID (Primary Key), Sbj_Name and Inst_Name, that stores subjects/courses and instructors information.

Table Number **(2)**

Subject Table

Field	Description	Data
Sbj_ID	Identification of Subject	Text
Sbj_Name	Subject Name	Text
Inst_Name	Instructor Name	Text

Table (3) shows the Questions table, displays many questions about the courses, syllabus materials, skills, and behaviors that relevant to the process of education. The table includes these fields: ST_ID (Foreign Key), Sbj_ID (Foreign Key), and X1, X2, X3…X15; each X is consider a question.

Table Number (3)
Question Table

Field Name	Description	Data
ST_ID	Identification of Student	Text
Sbj_ID	Identification of Subject	Text
X1	Question 1	Number
X2	Question 2	Number
X3	Question 3	Number
X4	Question 4	Number
X5	Question 5	Number
X6	Question 6	Number
X7	Question 7	Number
X8	Question 8	Number
X9	Question 9	Number
X10	Question 10	Number
X11	Question 11	Number
X12	Question 12	Number
X13	Question 13	Number
X14	Question 14	Number
X15	Question 15	Number

7.2. Outputs and Results:

The User Login can secure application in different ways, in this implementation the Form of Authentication is used because it is common technique. Each user needs credentials to be assigned to a role and need authorization rules to grant permissions. , as shown in figure 3.

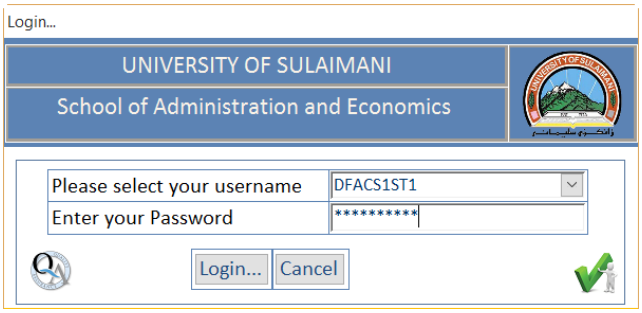

Figure Number (3)
Authentication Form

Figure 4 shows the questions form, used to display the information about instructors to students for evaluation, and has many questions of courses.

Figure Number (4)
Question Form

Figure (5) shows the performance evaluation form, indicates the results of evaluation, average and level for each question.

Figure Number (5)
Performance Evaluation Form

Figure (6) shows reports, illustrates the final results after the process of evaluation. The results presented in reports transformed automatically to the Quality Assurance Unit at the School of Administration and Economics, and then the Quality Assurance Unit will inform each instructor with the results, as shown in figure 7.

Figure Number (6)
Question Report Form

Figure Number (7)
Instructors Report Form

8. Conclusion:

Student feedback system helps the evaluation process and measuring the performance of the instructors in courses, then seeking for vulnerabilities. This system also provides efforts to improve and enhance the instructor's skills in education.

Student feedback system prepare the summery reports to quality insurance for each instructor's courses. Student feedback system measure the ratio of absent for each students, if a student absents in any course, and exceed the maximum allowance ratio for absence then they cannot take part in the feedback process. The system is anonymous for students that instructors cannot detect the feedback provided by their students.

Student Feedback System reduces the efforts of manpower by engaging less staff members for preparing and organizing evaluation papers for students, decrease overall time taken by the process and waste of resources needed for the process.

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