Adopting the evaluation of the electronic performance of the teaching staff and the extent of its impact on the diversity of scientific activities

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ABSTRACT

The evaluation of university performance in the past years has produced a huge leap in the field of using electronic technologies and the transformation of electronic management, as the university administration is no longer looking for statement and information only, but has expanded to include technically diverse dimensions, especially in how to achieve efficiency and effectiveness in documenting human resources information.

This study sought to clarify the role of university performance evaluation in achieving development in highlighting scientific and administrative competencies, and the study relied on the views of a sample of those included in the evaluation of university performance in the research sample, as the research problem was embodied by the question (Is there a moral correlation between the electronic evaluation of university performance and the diversity of scientific activities?), and whether there is a role for the electronic evaluation elements in improving scientific quality.

The study aimed to analyze the relationship and show the impact between the teachers 'electronic performance evaluation and the extent to which they are assured of their efficiency and effectiveness in developing the scientific direction at the university. Therefore, a scheme must be created and tested to arrive at an image that reflects the relationship between the study variables.

The researchers adopted a hypothetical model that was built after reviewing and analyzing the relevant literature under the main hypothesis.

Keywords: Electronic form for performance evaluation, documentation, standards and grades, scientific activity.

Introduction:

The functions of higher management have varied, including performance evaluation and quality assurance for human resources in general and the teaching staff in particular and the scientific and administrative activities that they produce, and as an inevitable result of developing the goals and duties of the institution and the sustainability of scientific efficiency and effectiveness through electronic documentation prepared and planned in a form equipped with know-how and

comprehensiveness to branch into (administrative teaching, And scientific teaching), and performance evaluation refers to the process of measuring and determining the level of performance of individuals working at the university[1, 2].

Here, most universities sought to determine the quality and quantity of the performance of the teaching staff, as it is the main pillar of scientific development in them, and to determine the capabilities and capabilities that each teacher has and the extent of his needs for development. The performance evaluation function is one of the most important functions that the human resources department exercises. Through measurement and evaluation, the university is able to judge the accuracy of the policies and programs it adopts, whether it is the policies of attracting, testing and appointing, or programs and policies for training, development and follow-up of its human resources, and given the importance of the needs of human resources management to prepare a system to evaluate performance in its electronic form to reduce costs, buildings and time, the university increased in size By relying on modern technologies, it reduced the effort and burden on human resources, and made optimal use of the systems and databases available in the college[3-5].

Concept of university performance evaluation

It has become important to work with the rapid changes taking place in the university campus and to move to the sobriety of university performance[6]. In order to avoid the differences resulting from the evaluation of the existing official between the performance of university administrations. It was necessary to find a solution to facilitate the tasks of their colleges and scientific departments with the ability to improve conditions for their teachers and students [7]. These methods make university administration and administration in colleges advanced models for the concept of modern scientific management in terms of performance efficiency and speed Achievement and accuracy of decision-making, reducing administrative restrictions and building modern administrative relations between them and their colleges and institutes, as well as raising the efficiency of the departments and divisions affiliated to them for student registration, planning, statistics, follow-up, postgraduate studies, practical research, engineering and financial projects, personnel services and others[8, 9].

As performance is a basic concept in the field of research, experimental and theoretical, performance is a function of all activities in the organization, and it was and still represents the main dimension in the field of management[10, 11]. Therefore, attention to it and its measurement is still ongoing. And performance in its simplest form represents the desired conclusions that enable the university to achieve, and it is also a reflection of the ability of the organization and its ability to achieve its goals, and the performance reflects the ability of the organization to exploit its resources and direct it towards achieving the desired goals [12-14].

The performance appraisal process has been defined as “a process aimed at determining the employee’s performance and introducing him to it and how he should perform his work and designing a plan for the employee’s development. Performance evaluation not only defines the employee with his level of performance, but affects his future performance level.”[11, 15].

Other researchers say that performance evaluation “means estimating the efficiency of workers for their work and their behavior in it, and that it is a formal system designed to measure and evaluate the performance and behavior of individuals at work through continuous and systematic observation of this performance and behavior and its results, during specific and known periods of time.”[16] Among the comprehensive definitions of performance evaluation is also "a periodic report that shows the level of performance of the individual and the type of his behavior compared to the tasks and duties of the job entrusted to him, as it helps officials

to know the weaknesses and strengths of that individual's activity." He also defined it "as that desired goal to address weakness, if any, and consolidate strengths, with emphasis on the actual performance of the employee in light of his job requirements, and to measure the quality of his giving through approved and planned standards".

Elements and tools of university electronic performance evaluation:

1- Electronic evaluation form: It is the method used to create a database and information about all the activities that the teaching performs during the year, which are published electronically by the Ministry of Higher Education and Scientific Research because it is a very fast way to display the information and obtain accurate, documented and saved data electronically and in a short period[17, 18]. To develop and improve the academic and institutional performance of the university through the application of the latest and best practices in the field of quality assurance and performance evaluation based on competence and competitive capabilities to improve the level of university outputs and to achieve the requirements of national and international accreditation. This form includes axes including (the personal and demographic axis, the administrative axis, the scientific axis, Student affairs axis, extra-curricular activities, thanksgiving, strengths).

2- Documentation: It is the science of preserving information with its coordination, classification, arrangement, preparation and making it a primary material for research and use, and it is an important science for preserving the human product, as it is that scientific information and preserving it in the sequence of events and transferring it from the past to the present and then to the future and to the people who can benefit from it and this applies to Transfer of information, activities, skills and innovations. Through documentation, you can search for stored information, which includes document, official books, photos, audio and video recordings, electronic texts, and traditional technical processes such as collection, storage, indexing, and classification.

3- Performance evaluation criteria: Performance evaluation is a control device that the university uses to achieve its predetermined goals, and performance refers to the teacher's accomplishment of the tasks assigned to him, and it means carrying out an action effectively and efficiently, and it is the process by which the official or the higher authority examines and evaluates the teaching behavior from By comparing it with the pre-defined standards, documenting the results of the comparison and using the results to provide notes to the teaching to show the places that need improvement and why, and also is that part of the performance evaluation and the management process in which the teaching's contribution to the university is evaluated during a specific period of time, and the teaching's strengths and weaknesses are identified. Because it is a development tool used for the comprehensive development of teaching and the university, and performance is measured against factors such as functional knowledge, quality and quantity of outputs, initiative, leadership capabilities, supervision, reliability, cooperation, judgment, versatility, and physical fitness, and the evaluation should be limited to the past. There are specific grades for each axis, so the first axis is for teaching and it has a rating of 40% that is filled out by the scientific committee and includes the courses, study materials and class management method, and the second axis the scientific and research activity 40% is filled by the scientific committee after the documents are submitted by the concerned person and it includes books And research, study, conferences, field visits, while the third axis: the educational aspect and other assignments deals with 20%, to include commitment to courses, committees and guiding skills, letters of thanks and appreciation.

The academic activities of the teaching staff included in the university performance evaluation form:

1- Scientific research.

2- Conferences (internal and external).

3- Practical and applied studies.
4- Patents
5- Authored books
6- Supervising primary and postgraduate studies research.
7- Field visits.
8- Scientific seminars.
9- Scientific courses.
10- Strengths such as coefficient h.
11- Contributing to curriculum development.
12- Contribute to the development of educational programs related to the process of education and e-learning and its diversity.
13- Contributing to educational and academic advising.

The importance of studying:

We can understand the importance of evaluating the performance of employees as one of the axes of developing human resources at the university, by identifying the extent of the benefit that accrues to the university in general and to the teaching staff in particular, is to enable the university to evaluate professors and their effectiveness in developing and developing their skills and scientific knowledge and to provide the university with indications and indicators. About the performance and conditions of teachers and finding solutions to their problems.

Objectives of the study:

Evaluating the current situation of academic and institutional performance in colleges affiliated to the university, and adopting electronic assessment to reduce the burden on workers in the quality assurance sector and reduce costs and expenses for preservation and opening paper records, while monitoring and diagnosing deviations if they exist and the various deficiencies that may affect the academic and institutional performance of each college or Institute, and raising the results, coupled with recommendations, to the university administration to take the necessary action regarding them, continuous follow-up and finding a way out of work problems that may negatively affect the educational and academic performance of each college or institute, and on the university level as a whole, to increase the ability to face them.

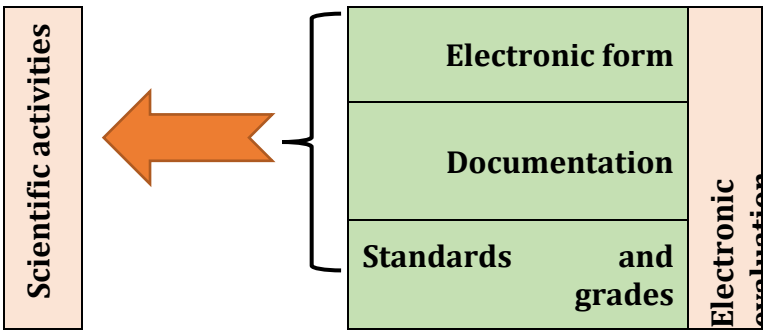
Previous studies:

The study [19] sought to clarify the role of evaluating university performance to achieve efficiency and effectiveness in administrative decision-making. In detail, the study revealed questions, including: Is there a role for the elements of university performance evaluation in achieving efficiency in administrative decision-making? Is there a role for the elements of university performance evaluation in achieving effectiveness in administrative decision-making?

As for the study [20], its content was a statement of the importance of raising the teachers 'efficiency as one of the most important reform policies in education and its direct impact on the level of learners' results, and thus raising the efficiency of the outputs of educational systems to respond to the requirements of the labor market. What are the factors that affect the efficiency of education systems more than others, and the reality of the state of Arab educational systems in light of the results of international assessments, ways to develop teacher performance in the classroom, and the extent of the diversity and variation of the environment and the economic potential of Arab countries?

In [21], the study relied on diagnosing the basic criteria for evaluating the quality and availability of Iraqi universities, the pillars of knowledge management and their availability, the indicators of the blue ocean strategy that can be accessed within the framework of the development of the educational system, and the extent to which standards for evaluating the quality of universities and the pillars of knowledge management collectively contribute to supporting the trends The organizations researched in adopting the indicators of the Blue Ocean Strategy.

Hypothetical study model:



Study hypothesis:

The study is based on two main hypotheses, as follows:

The first main hypothesis: There is a statistically significant correlation between the elements of the university electronic performance evaluation, represented by (electronic form, documentation, standards) and the increase in the scientific activity of the teaching. The second main hypothesis: There is a significant effect of the university electronic performance evaluation elements in increasing the scientific activity of teaching.

Study Population and Sample:

The current study population consisted of some deans, their assistants, heads of departments, and professors at the Northern Technical University, so the sample of the study reached (107) faculty members. The study tool, which is an electronic questionnaire, was distributed that includes several questions that meet the needs of the study with its axes, dimensions and variables, after which it was verified to verify its validity on the sample to the colleges and formations of the university, and the response rate was (100%) of the study sample.

Methodology:

Methods of statistical analysis:

The study was analyzed by statistical methods in order to test the hypotheses of the study, and from these methods, (percentages, frequencies, arithmetic means, standard deviations), which were mainly useful in describing and diagnosing the study sample and its variables, and the simple and multiple correlation coefficient was used to determine the strength and type of relationship between The dependent variable and the dependent variable, as well as the use of simple multiple linear regression to take advantage of it in measuring the significant effect of the independent variable on the dependent variable. The SPSS system has facilitated in finding the results of the above methods. The two researchers also adopted Likert scale as indicators for statistical analysis.

Note: The significance value (sig.) was adopted in testing research hypotheses instead of tabular values for the accuracy of the results computed from the significant value (sig.).

It should be noted here that all of these indicators were calculated by the Statistical Package for Science and Service Quality of Service (SPSSV24) program.

The sample of the study:

The two researchers used the random sampling method in distributing the questionnaire forms to the teaching staff and assuming that the community is similar, and then the appropriate sample was collected, which represented the study population, as the number of retrieved electronic questionnaires reached (109) questionnaires after distributing them to the sample members at a rate of 100%.

The demographic variables of the study: Describes the demographic variables of the study sample:

Table No. (1) indicated the number of repetitions and percentages of vital variables and the luckiest, as the number of repeats for

years of service from 10-20 years was 66 and its percentage rate was 60.6%, and the number of females in the sample was more than the number of males and the luckiest, as the number of repeats reached 67, with a percentage of 61.5%, so the females are the most scientifically active than males, and by the scientific title percentage, the title of teacher was repeated the most, at a rate of 42.2%, which indicates that scientific titles are on the rise.

Table No. (1) Frequencies and percentages of demographic variables

Number of years of service		
Paragraphs	**Reptations**	**Percentage**
under 10 years	**20**	**%18.3**
From10-20 years	**66**	**%60.6**
From 20-30 years	**20**	**%18.3**
From 30-40 years	**3**	**%2.8**
Total	**109**	**100.0**
Sex		
Female	**67**	**%61.5**
Male	**42**	**%38.5**
Total	**109**	**100.0**
The scientific title		
Assistant teacher	**37**	**%33.9**
Teacher	**46**	**%42.2**
Assistant Professor	**19**	**%17.4**
Professor	**7**	**%6.4**
Total	**109**	**100.0**

Reliability:

Table (2) Reliability and linearity Test

Variables	Reliability test	Reliability test
	No. of statements	**Cronbach's alpha**
Electronic form	5	0.726
Documentation	5	0.703
Standards and grades	5	0.776
Scientific activities	4	0.782
Total	19	-

Cronbach's alpha has been widely used in this study as a common reliability parameter

It is used in the social sciences to evaluate the average correlation between the elements for the measurement elements of the applied tool (Spiliotopoulou, 2009) in relation to the Cronbach alpha values related to the dimensions of the electronic form, the value of it was (0.726) and as shown in Table No. (2) Above. Also, the total values of: documentation and standards reflect a good degree of internal consistency, taking into account that both of them exceed the valid value limit which is (0.60) (Cronbach and Shavelson 2004), and this is confirmed by the calculated values for the documentation and standards with (0.703) and 0. 776, respectively, and finally some scientific activities have a reliable value of (0.782).

Table (3): Model 1 the test of the electronic form to evaluate the performance

Model 1	Athematic mean	Std. Deviation	No.	R	R2	F-Calculation	Sig.	DF	F-tabulation
X1	2.0000	.00000	4	.719	.517	114.109	.000	1	114.057
X2	2.0000	.00000	7						
X3	2.9524	.86465	21						
X4	3.7568	.79601	37						
X5	4.6250	.70484	40						

Table No. (3) Indicates a significant correlation relationship between the variables of the axis, the electronic form, which are (X1, X2, X3, X4, X5) and their arithmetic averages. We note that X4 that contains the paragraph (Did the electronic form use modern methods to evaluate the professor) obtained the number of iterations of 37 with an average arithmetic (3.757) and a standard deviation (0.796), the percentage of which was adopted as the most answer was (agreed).

The main hypothesis of Model 1: It says there is no statistical effect of the electronic form for evaluating performance on increasing the scientific activity of the teaching.

Multiple regression analysis was used to test the main hypothesis. As shown in Table No. (2) Above, the value of R is (0.719), which indicates the correlation between the independent variable and the dependent variable. The calculated F value (114.109) and the comparison to its important tabular F value at the level (0.05) and the sig. = 0.000 mean that there is a statistically significant effect of the dimension variables, the electronic performance evaluation form on improving the scientific activity of the professor, and this result obliges us to reject the null hypothesis, Acceptance of the alternative hypothesis.

In the vector space, the vector b is a linear structure with a linear correlation consisting of the vectors u1, u2, u3…u109 and the mathematical formulas as follows:

b1=x1u1+x1u2+x1u3+…+x1u109
b2=x2u1+x2u2+x2u3+…+x2u109
b3=x3u1+x3u2+x3u3+…+x3u109
b4=x4u1+x4u2+x3u3+…+x4u109
b5=x5u1+x5u2+x6u3+…+x5u109

Table (4): Model 2 the test of the documenting information

Model 2	Mean	Std. Deviation	No.	R	R2	F-Calculation	Sig.	DF	F-tabulation
X6	1.4000	.89443	5	.794	.630	186.209	.000	1	186.211
X7	2.5652	.89575	23						
X8	3.6522	.83168	24						
X9	4.1714	.56806	24						
X10	4.8696	.45770	33						

Table No. (4) Indicates the existence of a significant correlation for the dimension variables of the electronic form (they are (X6, X7, X8, X9, X10)) and the amount of their arithmetic averages and their standard deviations. We find that the variable X10 that includes the paragraph (Does documenting the data in the performance evaluation form give justice by distributing the scores) the number of iterations 33 was obtained, with an arithmetic mean (4.8696) and a standard deviation (0.458), the percentage of which was adopted as the most answer was (strongly agree).

Main hypothesis of Model 2: It says that there is no statistical effect of documenting the

data on increasing the scientific activity of the teaching.

Multiple regression analysis was used to test the main hypothesis. As shown in Table No. (3) Above, the value of R is (0.794), which indicates the correlation between the independent variable and the dependent variable. The computed F value (186.209) and comparison to its important tabular F value at the level (0.05) and sig. = 0.000 mean that there is a statistically significant effect of dimension variables documenting the information on improving the scientific activity of the professor, and this result obliges us to reject the null hypothesis, and accept the hypothesis Alternative.

b6=x6u1+x6u2+x6u3+…+x1u109
b7=x7u1+x7u2+x7u3+…+x7u109
b8=x8u1+x8u2+x8u3+…+x8u109
b9=x9u1+x9u2+x9u3+…+x4u109
b10=x10u1+x10u2+x10u3+…+x5u109

Table (5): Model 3the test of the performance evaluation criteria

Model 3	Mean	Std. Deviation	No.	R	R2	F-Calculation	Sig.	DF	F-tabulation
X11	2.6667	1.18818	18	.696	.485	105.833	.000	1	105.912
X12	2.8667	.91548	15						
X13	3.2143	.97496	14						
X14	3.7273	.82703	22						
X15	4.7500	.43853	40						

Table No. (5) Indicated the existence of a significant correlation relationship for the dimension variables. Standards evaluating performance and they are (X11, X12, X13, X14, X15) and the amount of their arithmetic averages and their standard deviations. The number of iterations is 40, with an arithmetic mean (4.75) and a standard deviation (0.438), the percentage of which was adopted as the most answer was (strongly agree).

The main hypothesis of Model 3: It says that there is no statistical effect of performance evaluation criteria on increasing the scientific activity of teaching.

b11=x11u1+x11u2+x11u3+…+x1u109
b12=x12u1+x12u2+x12u3+…+x2u109
b13=x13u1+x13u2+x3u3+…+x3u109
b14=x14u1+x14u2+x3u3+…+x4u109
b15=x15u1+x15u2+x6u3+…+x5u109

Multiple regression analysis was used to test the main hypothesis. As shown in Table No. (3) Above, the value of R is (0.696), which indicates the correlation between the independent variable and the dependent variable. The computed F value (105.833) and comparison to its important tabular F value at the level (0.05) and sig. = 0.000 mean that there is a statistically significant effect of dimension variables.

To calculate the arithmetic mean and find the measures of central tendency and find them for the vector of x variables is

$$\text{Mean} = \frac{\sum_{i=1}^{n} xi}{n} \ldots \text{n=109}$$

For the measure of dispersion or variance, the following function was used:
var(x)=var(x,w)

Where x is the vector of the study variables, and w is a vector of weights for the x vector.

Standards evaluating performance on improving the scientific activity of the professor, and this result obliges us to reject the null hypothesis, and accept Alternative hypothesis. As we see in fig (1).

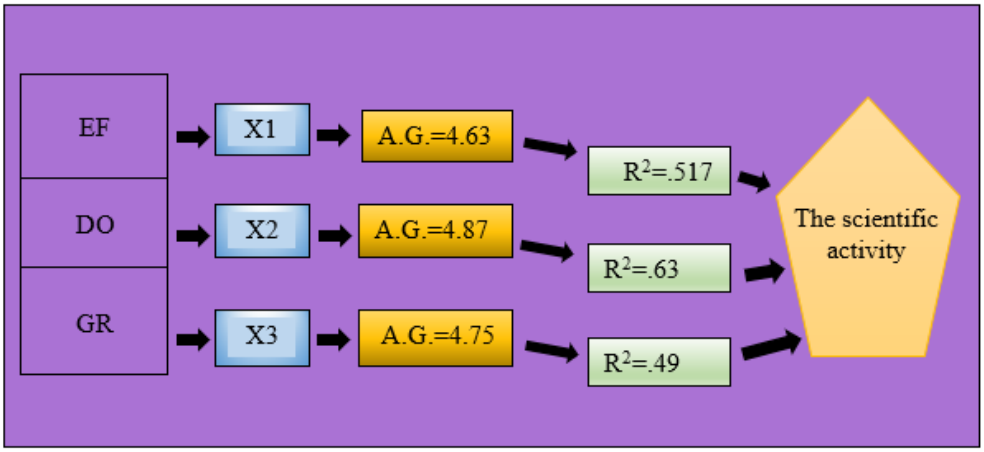


Figure No. (1) Represents the results obtained from the statistical analysis of the independent and dependent variables and the extent of their correlation

To describe the relationship between the scientific activity (x), and the independent variables, electronic form, Documentation, Standards and grades, and Y, the researchers used the general linear regression analysis equation:

$$Y=X\beta+\varepsilon$$

In order to find the estimated values of β parameters, we depend on the properties of matrices in mathematics and through the following formula:

$$\beta=(X'X)^{-1}X'Y$$

Recommendations and conclusions:

The modern technical method was used to evaluate the performance of the teaching staff, as it was prepared according to a specific system and specific dates that required the departments to track the work and achievements of the teachers after submitting their reports and documented documents about their competence and keeping them within the college's database to record their observations and results of their evaluation as documents to judge the validity of the calendar and the adherence to its dates, thus ensuring continuity Control and supervision.

Here, the study showed the possibility of making real adjustments to advance the field of developing university performance and raising efficiency in the concepts of university administration and the management of colleges and scientific departments, due to its direct connection with the strength and effectiveness of university administration and scientific management in colleges on the one hand and the teacher's ability to fulfill his duties on the other hand.

Through conducting an opinion poll for the study, the participation of the teaching staff in making all the important decisions related to the scientific and educational role they play to be aware of the dimensions and importance of the transition phase in education and go to electronic education such decisions and then implement them in a manner that ensures the achievement of the desired goal of the educational process. Accordingly, all these decisions, proposals and recommendations that are taken at the level of the departments must be presented in the department councils so that all the teaching staff can contribute by taking them after their discussion and passing out.

Therefore, following up the role and activity of the teaching staff and constantly evaluating their performance according to the approved methods and formulas, after preparing the annual report for the tasks of the faculty members, conducting the analysis and extracting clear positive points in it for the purpose of circulating them to the rest of the authorities and indicating the negative points and procedures for dealing with them and submitting this report to the presidency of the

university to clarify its procedures in this regard And inform the Ministry Center of that.
Finally, the application of an electronic evaluation form for the faculty member made this form an integral part of the process of following up and evaluating the faculty member on his annual effort with the ease of archiving and preserving a documented and studied electronic copy according to standards and ratios that guarantee the teacher his professional right without discrimination at the college and university and send a copy to The Ministry Center for the purpose of following up the development of teaching evaluation points annually.

Recommendations:

1- It is necessary to follow objective and clear methods and standards in the process of performance evaluation and to be carried out in accordance with the modern scientific and professional method.
2- Holding continuous courses with the development of the programs included in the scientific plan, to develop the administrative staff and include them in courses held by ministries and other institutions to develop its performance and increase its efficiency.
3- Preparing the statistics, planning and workforce divisions and placing their cadres in training courses to raise their efficiency and increase their planning and statistical awareness to be a center for storing data and information and facilitate the decision-making process and preparing the necessary reports for university administration and college administration.
4- To measure the productivity of the teaching staff by the scientific departments by codifying the strengths and weaknesses in the productivity of the teaching staff and encouraging its sustainability.
5- Continuous follow-up and appreciation of the efforts made by the teachers by giving them a reward, a letter of thanks and appreciation, and highlighting their scientific efforts to create a comfortable psychological atmosphere that is satisfied with its subordinates.
6- In order to consolidate and deepen university traditions that aim to accelerate the improvement and development of adequacy of performance, monthly activity reports must be submitted by university presidents, their assistants and faculty deans to the Minister of Higher Education and Scientific Research, in order to identify cases of weakness and strength and the reasons leading to this beginning from the student status and up to the educational and scientific status.

Resources

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