

## SATISFYING JUSTICE IN HUMAN RESOURCE MANAGEMENT APPRAISAL SYSTEM

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### **Abstract**

*Majority of human resources departments struggle to achieve equality among the staff in the organization because of the unavailability of efficient appraisal tools. Therefore, this study focused on identifying university staff's perspectives about the performance appraisal system, by comparing it to the general byelaw for staff performance assessment. The study applied statistical analysis of fuzzy logic, by conducting a two-way analysis of a random sample (n=350). Findings revealed that ministry's appraisal system is medium in fairness and applying justice but only 12.6% considered university appraisal system to lack justice, 31.1% deemed it medium and 56.3% found it implementing justice.*

**Keywords:** Human Resources Performance, Fuzzy, Appraisal System, Fairness and Satisfaction.

**JEL Code :** M11, M21 and M51

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### **1. Introduction**

The unbiased human resource appraisal system is one of the most important effective pillars, that promotes the job satisfaction of individuals and groups and motivates them for more creativity, excellence, and productivity, under the most stressful conditions or it may work against organization's objectives, if the appraisal system was handled unscientifically. Employees can be categorized, based on several

specifications, that describe their functions and identify the tasks to be assigned to them, depending on variables such as experience, gender, and professionalism as well as the type of products they control such as goods, services, and processes and there are various studies assessing the level of performance and identifying the differences among staff, to determine the phases of achievement and the type of career reward. These appraisal systems are traditional technique, that need to be

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developed to achieve new levels of measurement, that could enable executives and decision-makers, to unleash the unseen efforts done by some staff within the (ambiguous) scope or the neglected area, where the staff are excluded from the incentive system and achieve the goal of job justice among NGOs. Through the process of statistical analysis, using the matrix of ambiguous values (ambiguous method), the study modified the tax matrix evaluation model, by applying it to a sample study.

## 2. Review of Literature

The proper functioning of the roles, attached to a certain job, is one of the most important features of human resource management. Professional performance is the cornerstone of updating and improving the measurement model, used to reassign the roles and tasks among employees, based on their level of performance. This could be followed by diversifying, updating, and improving the goals, to be able to adopt as a measurement issue, that needs prediction and measurement tool (Raghavendra, et al, 2019; Sarora and Sharma, 2018). This, of course, is a hidden or fuzzy job. Xu, et al., (2005) on the performance and the role of expertise in the process of human resource management, by adopting the fuzzy approach based on variables like years of experience, number of employees, number of tasks, group of staff with difficult tasks, staff with little tasks, the staff dedicated to performing roles outside the scope of their work and the required time for each task (Varghese and Sudhahar, 2018) (Gupta, et al 2018; Oli, et al, 2018). This has enabled them to identify the skill level of some staff in a particular mission. As an established numerical example, it is essential towards taking realistic decisions, regarding the human resources allocation in an organization of a dynamic environment. In a

study conducted by Canos and Liern (2004), the fuzzy logic of human resources decision-making was implemented such as staff selection and the characteristics of the exemplary employee. The flexibility of these techniques helped in rearranging applicants for jobs, using criteria such as distance or degree of similarity with the “potential employee or the ideal candidate”(Kachwala, et al., 2018). This method has also enabled the classification of staff in a complex situation such as integration into the work environment or acquisition of knowledge, either by analyzing the current classification criteria or by proposing fuzzy values, employing the fuzzy approach, used in the study. (Behnamian, 2016). Backes-Gellner, et al., (2016), in their research on the approach of classifying capitalism identified a number of key human resource management practices, that explain the basis of innovation in mother companies, affiliated companies, and subsidiaries. However, the findings have concluded that multinational corporations, offering functional flexibility, are a major supporter of human resource practices, to achieve innovation across different types of capitalist countries (Zulfiqar, et al., 2019) (Ali, et al, 2019). On the other hand, Veluchamy and Krishnan (2016) discussed how to use the fuzzy matrix, to develop a manual for the professionals of the human resource departments and their practices in the talent management, regardless of their industries (Sebastian and Mathew, 2018; Ullah, et al., 2019).

### 2.1 Human Resource Appraisal Systems

To explore the effectiveness of appraisal systems, in the evaluation of the human resources performance, it is mandatory to highlight some efficient results in this domain, even in the organization or teamwork workplaces. Furthermore, it is a requirement to observe the

impact of ambiguity as well as the clear factors, on employees' perspectives about the implementation and efficiency of the appraisal system, **Ciobanu and Androniceanu (2018)**.

## **2.2 Employees Performance and Appraisal System**

The employees' responsibilities vary, based on the workplace environment, organizational structure and loyalty in being active in achieving jobs and related tasks. Therefore, to provide internal awareness on employees' responsibility, many studies correlated organizations with employees' corporate governance and responsibilities to develop suitable appraisal systems. **Helfen, et al., (2018)**.

## **2.3 Performance Evaluation, Using Fuzzy**

**Ozdaban and Ozkan (2010)** indicated that the human resource management is the most important part of the organization. Many studies have been conducted, such as **Yager (2009)** **Chen (2013)** **Shen, et al., (2015)**, the findings of which indicate that it is usual to formalize different fuzzy sets, based on multiple criteria. Then the fuzzy matrix will be subject to test for each item in the first section, compared to the items in the second one. The studies recommended a matrix, that measures sustainability, employer satisfaction, staff distribution, and efficiency of the organizational structure.

## **3. Statement of the Problem**

The study focuses on analyzing the role of professional and socialized jobs, in understanding the issues and challenges, facing human resources in accepting and being satisfied with appraisal system by evaluating the percent of fairness in performance evaluation techniques and methods, using the fuzzy approach method (**Zadeh, 1978**) (**Zhenyuan and Klir, 1992**) (**Wang and Klir, 2013**).

## **4. Need of the Study**

The need of this study is based on its necessity, to identify the use of appraisal systems which have become a traditional technique, that needs to be developed to achieve new levels of measurement, that would enable executives and decision- makers, to unleash the unseen efforts done by some staff within the (ambiguous) scope or the neglected area, where the staff are excluded from the incentive system.

## **5. Objective of the Study**

This study may help to understand the skills level of the newly recruited staff and their need for training or development. Moreover, it could help decision-makers, executive managers, and stakeholders, in analyzing the capabilities and comparing them with the performance level. This can be done by verifying the efficiency of training and recruitment and its effect on supporting the human capital of the organization itself.

## **6. Hypothesis of the Study**

**NH-1:** The employees are not satisfied with appraisal system of performance and its fairness, based on university law as well as ministry law.

## **7. RESEARCH METHODOLOGY**

### **7.1 Sample Selection**

The study community consisted of administrative and academic staff of the Saudi universities and the sample of the study was the employees in various departments and colleges of the Northern Borders University at ARAR City, in the northern region of Saudi Arabia. The study applied statistical analysis of fuzzy logic, by conducting a two-way analysis of a random sample (n=350).

### **7.2 Source of Data**

The data source was the results of previous research and studies, which are referenced in

this study and correlated in the same domain and another source was the collected data, from study sample of responders, based on the study tool.

### 7.3 Period of the Study

The period of study was three years, 2017 to 2019.

### 7.4 Tools used in the Study

The study tool was online survey, that included four variables within sub-paragraphs of questions, that indicated the employees' responses (No, I don't know, Yes), which was determined in matlab to be numerated in (-1,0,1) while the (0) expresses the fuzzy ambiguous value.

## 8. Data Analysis

The study was undertaken by:

- Designing a survey for evaluating appraisal system, using the blur matrix of (-1, 0, and 1).
- Analyzing the results of the values through SPSS software and analyzing the values of variance in the Fuzzy Approach Matrix.

In addition, to apply the study methods, the Researcher designed the following hierarchical structure of research, as shown in **Figure-1**: According to the probability tree of matrix, the suggested formula, for the conditional analysis to explore the results, are:

$$\begin{array}{l} \begin{array}{ccc} X1 & X2 & Y \end{array} \\ \begin{bmatrix} 0 & 0 \\ 0 & 1 \\ 1 & 0 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \dots\dots\dots \text{Matrix 1.} \\ \begin{bmatrix} 2 & 0 \\ 1 & 1 \\ 0 & 2 \end{bmatrix} = \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix} \dots\dots\dots \text{Matrix 2.} \\ \begin{bmatrix} 2 & 2 \\ 2 & 1 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 2 \\ 2 \\ 2 \end{bmatrix} \dots\dots\dots \text{Matrix 3.} \end{array}$$

Then the following logical formulas were selected by a programmer, to insert data within MATLAB.

- $Y = 0 \text{ (Low), If } \begin{cases} x1 = 0 \text{ AND } x2 = 0 \\ x1 = 0 \text{ AND } x2 = 1 \\ x1 = 1 \text{ AND } x2 = 0 \end{cases}$
- $Y = 1 \text{ (Medium), If } \begin{cases} x1 = 2 \text{ AND } x2 = 2 \\ x1 = 2 \text{ AND } x2 = 1 \\ x1 = 0 \text{ AND } x2 = 2 \end{cases}$
- $Y = 1 \text{ (High), If } \begin{cases} x1 = 2 \text{ AND } x2 = 0 \\ x1 = 0 \text{ AND } x2 = 1 \\ x1 = 0 \text{ AND } x2 = 0 \end{cases}$

It is clear from **Table-1** that the mean of overall perspectives, about appraisal system from the ministry side, was 1.28, which was less than the mean value of overall perspective, reported at 1.4164 on the university side. This implied the highest satisfaction of NBU system, according to need, objectives and staff development laws and therefore, these results indicated the different ambiguous 13-14% between two means, which is accurately adequate with system analysis of fuzzy result of 14%. Irrelevant results were analyzed in further studies. In addition, the degree of evaluation appraisal system, according to the legislation of the Ministry of Higher Education, applied by the civil service system in the Kingdom of Saudi Arabia and the university, showed the degree of fairness, in general, to be medium. In addition, it showed that appraisal needs scored the highest overall average in employees' perspectives, from both sides of MOHE and NBU laws. The other three pillars of appraisal, objectives, criteria, and staff development, scored medium value, under MOHE laws but with the high average of appraisal needs, from the side of NBU laws. Hence, **NH-1: The employees are not satisfied with appraisal system of performance and its fairness based on university law as well as ministry law**, was rejected. The following figure surface plot

illustrates the relationship between justice and evaluation legislation, under the laws of the ministry and the university (**Figure-2**).

The previous figure illustrates the selected entries, obtained from MATLAB, after applying fuzzy logic. These figures illustrate the effects of inputs on output, based on the rules given, as the fairness index in performance evaluation varied with the degree of evaluation from the ministry and the university. It is clear that the performance fairness index recorded very strong positive relationships with inputs, which clearly represents an increasing index with the increase in the two evaluation processes, according to the legislation of the ministry and according to the legislation of the university. The previous figure clearly shows that the degree of evaluation according to the legislation of the Ministry of Higher Education, applied by the civil service system in the Kingdom of Saudi Arabia, at 1.67, was equivalent to the degree of evaluation to be high and the degree of evaluation according to the legislation of the University of the Northern Borders, which was developed by the Council of the University, in accordance with the public interest from the point of view of the decision makers in the Council, was 0.50, which was equivalent to an evaluation at average. Hence the degree of fairness in the employee performance evaluation model, at one implied that justice was medium.

## 9. Findings of the Study

Findings of the study showed that different methods, in both theoretical and empirical approaches, led to significant results. Moreover, an analysis of the results of appraisal system, based on participants' perspective, indicated that it was from medium to high in overall evaluation, with values greater than one and on the side of university satisfaction level, it was more on law.

## 10. Suggestions

It was clear that ambiguity appeared, within analytical as well as theoretical attempts, to visualize critical factors, which are applicable to evaluation by employees, using perception mining techniques after conducting surveys and questionnaires and examining the appraisal system efficacy itself (Al-Lozi, et al., 2018; Cappelli and Conyon, 2018; Ciobanu and Androniceanu, 2018; Helfen et al., 2018; Keegan and Den Hartog, 2018; Ololube, 2018; Tsourvakas and Yfantidou, 2018). To avoid this ambiguity, suitable techniques were used, to examine employees' satisfaction about appraisal system and performance evaluation methods, using novel data-mining analysis such as fuzzy logic, which covered the gap of ambiguity in the appraisal system (Aviso et al., 2016; Backes-Gellner et al., 2016; Behnamian, 2016; Beliakov, et al., 2017) and (Muzzioli and De Baets, 2013) (Dandan and Zoran, 2016)(Lee, et al., 2019; Nobari, et al., 2012; Sadegh et al., 2017).

## 11. Conclusion

It was concluded that appraisal systems need to be enhanced, by developing internal pillars of efficacy, led by top management rather than repeatedly examining multiple variables with different adapted questionnaires or surveys. It would be advisable to use different evaluation techniques, that would meet employees' conditions of working. In addition, Fuzzy logic analysis presents a new approach, to measuring critical data that belong to discrete intervals, which cannot be measured by the analysis software, that deals with Likert scales Adývar and Mert (2010)(Cadenas & Verdegay, 2009).

## 12. Limitations of the Study

Study sample exclusively selected university staff in one university, while further

studies may show different results, if the assessment technique selected another sample.

### 13. Scope for Further Research

This is scope for further research on assessment tools, that university should use to enhance the working environment, based on satisfaction and quality of work. It is recommended that in-depth research shall be adopted, to examine the reasons behind the dissatisfaction of ~13% of employees

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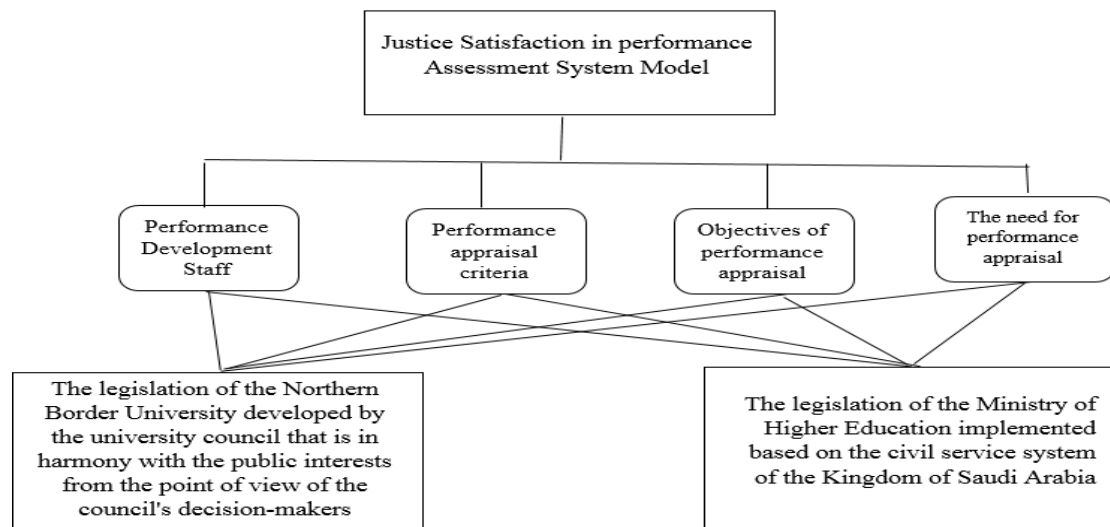
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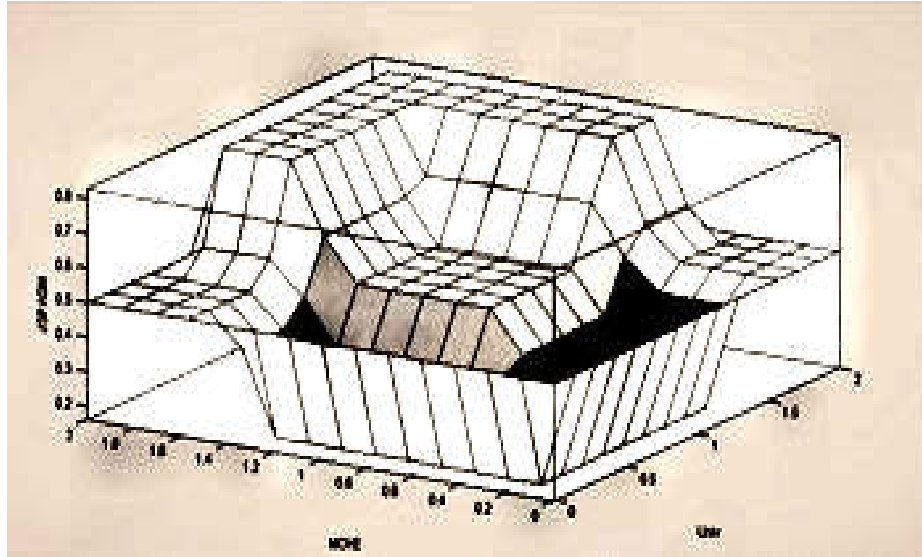
**Figure-1: Hierarchical Structure of Study Methods**



**Source:** Drawn by authors using matlab



**Figure-2: Surface Plot Illustrates the Relationship between Justice and Appraisal System**



Source: Drawn by authors using matlab

**Table-1: Summary of Overall Evaluation Pillars of An Appraisal System**

Assessment Side	MOHE –KSA			NBU-KSA			Means of both sides		
	Mean	Std. Dev	Degree	Mean	Std. Dev	Degree	Mean	Std. Dev	Degree
Appraisal Needs	1.398	0.656	High	1.481	0.542	High	1.440	0.519	High
Appraisal Objectives	1.288	0.727	Medium	1.426	0.630	High	1.357	0.622	High
Appraisal Criteria	1.242	0.755	Medium	1.356	0.712	High	1.299	0.664	Medium
Staff Development	1.189	0.780	Medium	1.401	0.686	High	1.295	0.660	Medium
Overall Degree	1.280	0.665	Medium	1.416	0.569	High	1.348	0.551	High

Source: Primary Data computed using matlab