

## Identifying and Ranking Factors Affecting Motivation of Employees (A Case Study of Maroon Petrochemical Company)

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**Abstract:** As an applied study using descriptive-analytic and survey methods, the objective of the present paper was to identify and rank factors affecting motivation of employees working at Maroon Petrochemical Company. The statistical population included all the employees working at Maroon Petrochemical Company. The 160 people were selected as the statistical sample through simple random sampling method. To gather required data, the 40-item job motivation questionnaires proposed by Herzberg. The questionnaire included 11 criteria of occupational safety, wage and salary, work environment conditions, relation (personal relations with colleges), environment policy, appreciation, occupational responsibility, occupational development, occupational position, job nature and the way of supervision. The research findings revealed that in Maroon Petrochemical Company, occupational safety has the highest effect on the employees' motivation. Then, wage and salary, work environment conditions, appreciation, occupational development and occupational position, respectively, are the effective factors on the employees' motivation.

**Key words:** Motivation of employees, internal (mental) factors, external (health) factors, maroon petrochemical company, factors

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### INTRODUCTION

Efficient human labor force which is considered as the foundation of an organization's critical assets and national wealth will be followed by many benefits for organizations, companies and economic enterprises. Labor force is the main and fundamental constituent of every industrial community through appropriately directing which a healthy work environment and purposeful society can be created. One of the appropriate ways to achieve desirable organizational objectives is to create mental motivation in industrial community's employees. Given that motivation is created through different methods in various work environments and employees, managers should design and implement their managerial policies with respect to work environment and complete awareness about status quo.

It is highly important to investigate the motivation of employees and find its causes and consequences. Such a fact causes that appropriate actions are taken in line with changes and to prevent failures. The process of stimulating to fulfill an action necessary to achieve a desirable goal is a very important skill for all managers, which are defined through stimulating individuals to

achieve organization and members' objectives. Identifying factors affecting motivation is a necessity which can be fruitful to increase productivity and job satisfaction of employees in an organization.

Human have different motivations for their activities and their prioritization is not identical for all activities (Chandra and Frank, 2004). Job motivation of individuals who enter into an organization may not be the same. As factors affecting job motivation, it can be referred to wage and salary, liveliness and joy in work environment, occupational safety, interest in job, appropriate social relations at work place, nature of job and appreciation (Keritner, 2009).

The researches results revealed that employees with motivation have a good physical and mental power. Also, organizationally, an organization is successful when it provides a high level of job satisfaction to absorb and maintain employees (Yousef, 2008).

In studies related to the relation between job motivation and efficiency level, lack of motivation causes to decrease individuals' efficiency in organization (Hanif, 2007). Furthermore, this factor causes the lack of presence at work place and decrease the quality and quantity of organization. The researchers also revealed that long

hours of work, low salary and wage, lack of job safety, lack of job independency and adequate resources are the factors related to lack of motivation and cause disappointment (Khuwaja *et al.*, 2010).

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Regarding the factors affecting job satisfaction and motivation of individuals, there are various theories. These theories can be divided into two groups. The first group is content theories which discuss the content of creating job satisfaction and motivation (e.g. Maslow's theory and Herzberg's theory).

The most common and applied theory regarding job satisfaction is Herzberg's theory. Herzberg believes that job motivation is influenced by internal or mental factors (factors stimulating motivation) and external and hygiene factors (factors maintaining motivation) and investigating them, the most factors in job satisfaction can be identified and used in programs of enhancing the quality of organization's performance (Abadi, 2011). Therefore, given to different respective theories and definitions, those theories should be used which can be analyzed with respect to environmental conditions of statistical population.

In the present study, Herzberg's theory has been employed due to appropriate classification of occupational and individual factors.

- Accordingly, the main research question can be stated as following
- "What are the most important factors affecting motivation of the employees in Maroon Petrochemical Company

## MATERIALS AND METHODS

As an applied study using descriptive-analytic and survey methods, the objective of the present paper was to identify and rank factors affecting motivation of employees working at Maroon Petrochemical Company. The statistical population included all the employees working at Maroon Petrochemical Company such that based on the information of the company's personnel was 570 people (non-official employees of the company were the statistical population but not all the employees). During the primary investigations, out of 570 people, 260 qualified people were selected and participated in the study.

In the present study, given to the homogeneity of the statistical population, simple random sampling was used to give all individuals to have the equal chance to participate in the study.

Since, the statistical population was a limited population and given to the research limitations, time limitation and cost limitation, sampling was performed and  $n$  was estimated. In the research,  $\alpha = 0.05$ . The sample size was calculated using the following Cochran Formula:

$$n = \left( \frac{N \cdot Z_{\alpha/2}^2 \times p \times q}{d^2 (N - 1) + Z_{\alpha/2}^2 \times p \times q} \right) \Rightarrow$$

$$n = \frac{260 \times 1.96 \times 0.5 \times 0.5}{(0.05)^2 \times (260 - 1) + 1.96 \times 0.5 \times 0.5} \approx 155$$

The common confidence level of 95% has been considered in this study ( $d$  can be selected at the maximum level of 0.06). Considering Cochran formula, the number of the sample was estimated 155 and it was considered 160 to compensate some deficiencies and unanswered questionnaires.

To gather the required data, both library (internal and foreign articles and internet resources) and field (Herzberg's job motivation questionnaire) were employed. Job motivation questionnaire proposed by Herzberg includes 40 items. Based on the two-factor theory of Herzberg and given to internal (mental) factors and external (health) factors, this questionnaire was provided by Bakhshi and coauthors to create job motivation in faculty members of Rafsanjan Medical University. Their formulated questionnaires included 11 4-point criteria ranging from very important to not important.

As Herzberg believes, motivation is influenced by motivation (internal or mental) factors and hygiene (external) factors. Motivation stimulating factors derive from work which causes to satisfy individuals as mental/internal rewards which are necessary to increase work efficiency. These factors include success, advancement, appreciation and the nature of job. On the other hand, to supply and maintain the health of organization, identifying external factors is mainly related with work place and maintains employees in organization, including policies, conditions and regulations of work place, personal relations with colleagues and job safety.

The number of phrases in each groups of internal (mental) and external (hygiene) entailed five phrases related to recognition and appreciation, four phrases related to job development and advancement, three phrases related to the nature of work, three phrases related to independency and responsibility, two phrases related to success and job promotion, three phrases related to wage and salary, three phrases related to policy governing work environment, five phrases related to the

Table 1: Sub-scales elated to each factor

Factors	
Internal (mental)	Recognition and appreciation, occupational advancement and development, The nature of work, occupational responsibility, occupational position
External (hygiene)	Wage and salary, Environment policy, personal relation with colleague Occupational safety, work environment conditions, the way of supervision

Table 2: The items of Herzberg's questionnaire

Main factors	Items
Salary	The appropriateness of salary with life needs, the appropriateness of salary with work, the appropriateness of salary with activity
Environment's policy	Clear rules and regulations, the appropriateness of officials' expectations from you, the appropriateness and clearance of rewarding and punishment
Relation (personal relation with colleague)	The relation officials' relations with you, the relation of others with your, manager's relation with you, relation of you with others, relation of your colleague with each other, observing justice and lack of discrimination among, colleagues from the behalf of officials
Occupational safety	The presence of facilities to prevent occupational events, The presence of appropriate facilities to use retirement insurance, The amount of occupational stability (occupational safety)
Work environment	The physical conditions of work place (light, noise, pollution, etc., The presence of equipments and facilities appropriate for work, The presence of welfare facilities
The way of supervision	Easy access to officials in, The way of direct supervision by officials over employees, The way of indirect supervision by officials over employees, The way of evaluating employees by officials, The way of directing employees by officials
Recognition and appreciation	In case of presenting a valuable work, employees are appreciated by colleagues, In case of presenting a valuable work, employees are appreciated and financially rewarded by officials, In case of presenting a valuable work, employees are appreciated and spiritually rewarded by officials, Officials consider themselves responsible regarding professional problems, Adequately supporting employees in legal references by mangers
Occupational developmen and advancement	The possibility of job promotion, The possibility of further education, Facilities of participating in seminars and conferences
The nature of work	The presence of appropriate research facilities
Occupational responsibility	The ability to serve for society through job, Considering the job valuable by society, Interest in job and job satisfaction
ational position	Freedom of speech and giving authority, Accepting employees' suggestions and ideas in decision makings
	Independency in providing services , The possibility of promotion, Direct involvement in work process

relation with other people, four phrases related to occupational safety, three phrases related to work environment conditions and five phrases related to the way of supervision (Table.1)

In a research performed by Bakhshi and coauthors the test reliability was obtained 0.92 and the results revealed that 81% of the faculty members consider external factors as effective factors and 72% of them considered internal factors as effective factors in job motivation. Among the external factors, wage and salary, job safety, work environment conditions, relation with others, the way of supervision, policy governing work environment, respectively and out of the external factors, the nature of work, recognition and appreciation, job advancement and development and occupational success, respectively have the highest effect.

To analyze data, descriptive and inferential (K-S test, binominal test and Friedman test) statistics have been used through SPSS. In the following Table 2, 40 items of the questionnaire with 11 motivation related indices have been presented.

## RESULTS AND DISCUSSION

Descriptive Statistics of the Sample's Demographic Information. Firstly, descriptive information of the respondents based on age, work experiences and education have been presented in the following

Table 3: Frequency and percentage of the sample based on age

Age	Frequency	Percentage
20-15	3	1.9
25-30	24	15.0
30-35	43	26.9
35-40	38	23.8
40-50	36	22.5
Above 50	15	9.4
Unanswered	1	0.6
Total	160	100.0

Table 4: Frequency and percentage of the sample based on work experience

work experience	Frequency	Percentage
Less than 2 years	8	5.0
2-5	41	25.6
5-10	36	22.5
10-20	37	23.1
Above 20	32	20.0
Unanswered	6	3.8
Total	160	100.0

Table 5: Frequency and percentage of the sample based on education

work experience	Frequency	Percentage
Below diploma	0	0.000
Diploma	15	9.400
Associates of degree	8	5.000
Bachelor	85	53.10
Master	52	32.50
PhD	0	0.000
Total	160	100.0

(Table 3 and 4). According to Table 3, about 73% of the sample is 30-50 year old. According to Table 5, about 85% of the respondents have above bachelor degree.

Table 6: Investigating data normality using K-S test

Variable	K-S statistic	Sig.	Result
Wage and salary	0.103	0.000	Not normal
Work environment policy	0.125	0.000	Not normal
Relation (personal with colleagues) relations	0.102	0.000	Not normal
	0.090	0.003	Not normal
Occupational safety	0.147	0.000	Not normal
Work environment conditions	0.117	0.000	Not normal
The way of supervision	0.088	0.004	Not normal
Occupational development and advancement	0.087	0.005	Not normal
The nature of work	0.110	0.000	Not normal
Occupational responsibility	0.121	0.000	Not normal
Occupational position	0.161	0.000	Not normal

Table 7: Bi-nominal test to investigate mean scores of each factor

Variable	Groups	The number of observations	Probability	Sig.
Wage and salary	$\leq 3$	41	0.26	0.000
	$> 3$	119	0.74	
Relation (personal relations with colleagues)	$\leq 3$	69	0.43	0.097
	$> 3$	91	0.57	
Work environment policy	$\leq 3$	42	0.26	0.000
	$> 3$	118	0.74	
Occupational safety	$\leq 3$	33	0.21	0.000
	$> 3$	127	0.79	
Work environment conditions	$\leq 3$	32	0.20	0.000
	$> 3$	128	0.80	
The way of supervision	$\leq 3$	92	0.58	0.069
	$> 3$	68	0.43	
Recognition and appreciation	$\leq 3$	64	0.40	0.014
	$> 3$	96	0.60	
Occupational development and advancement	$\leq 3$	67	0.42	0.048
	$> 3$	93	0.58	
The nature of work	$\leq 3$	90	0.56	0.133
	$> 3$	70	0.44	
Occupational responsibility	$\leq 3$	84	0.53	0.580
	$> 3$	76	0.48	
Occupational position	$\leq 3$	102	0.64	0.001
	$> 3$	58	0.36	

## Inferential statistics

**Investigating data normality:** Before testing the research hypotheses, data normality should be investigated to determine whether parametric test can be used or not. (Table 6)

Given to Sig. value which is  $< 0.05$  for all the variables, normality distribution assumption of the data is rejected at the confidence level of 99%. Therefore, parametric tests cannot be used to test these variables. Non-parametric tests appropriate to test the research hypothesis are binominal test.

A bi-nominal test compares the distribution of one or two two-mode variables with bi-nominal distribution with one probability. In general, bi-nominal test assumption is as following:

$$\begin{cases} H_0 : p = p_0 \\ H_1 : p \neq p_0 \end{cases}$$

In the present research, the hypotheses are as following:

$$\begin{cases} H_0 : p = 0 \\ H_1 : p \neq 0 \end{cases}$$

Table 8: Chi-Square test results for Friedman ranking

Parameters	Values
Number	160.000
Chi-square statistics	209.715
Degree of freedom	10.000
Sig.	0.000

Based on the null hypothesis, each of modes is identical and equals 0.5 (Table 7). With respect to the software output for the variables of wage and salary, relation (personal relations with colleagues), occupational safety, work environment conditions, recognition and appreciation, occupational development and advancement and occupational position,  $p < 0.05$ ; therefore, the null hypothesis is rejected and the main hypothesis is confirmed. Furthermore, given that the mean value for the variables of wage and salary, relation (personal relations with colleagues), occupational safety, work environment conditions, recognition and appreciation, occupational development and advancement and occupational position is  $> 3$ , these variables influence the employees' motivation at significance level of 5%. Now, using Friedman ranking, the factors affecting the employees' motivation are prioritized (Table 8).

Table 9: Friedman ranking method for factors affecting job motivation

Variable mean	Ranking
Occupational safety	7.76
Wage and salary	7.58
Work environment conditions	7.31
Relation (personal relations with colleagues)	6.53
Work environment policy	6.26
Recognition and appreciation	5.77
Occupational responsibility	5.44
Occupational development and advancement	5.31
Occupational position	4.77
The nature of work	4.7
The way of supervision	4.57

As shown in the table, p-value is less than 0.05 indicating that all there is a significant difference between the research variables in terms of ranking.

According to Table 9, occupational safety (7.76) has the highest effect on the employees' motivation. The other variables of wage and salary (7.58), work environment conditions (7.31), relation (6.53), recognition and appreciation (5.77), occupational advancement and development (5.31) and occupational position (4.77), influence the employees' motivation, respectively.

## CONCLUSION

Occupational incentives of employees in societies and various periods are different with respect to economic, social and cultural conditions of each society. Therefore, planning to increase productivity and improve the performance of employees should be performed based on the above conditions.

In the present age, employment is rapidly changing. Organizations are minimizing and moving towards virtual world and their relation with each other is increasingly becoming complicate. Organizations have been changed into the central cores and other employees are placed around the center. In such a system, every member works for himself/herself and benefits from income as much as he/she creates added value. Also, in such a system, wage payment has been replaced with a percent of benefit. Companies are not willing to employ individuals and try to absorb their required labor force through contracts. This trend is inevitable in commercialization and globalization of economy. This trend has been occurred in developed countries long ago and it is now occurring in under development countries.

Considering the research findings, managers should pay more attention to the importance of factors affecting job motivation in the employees. Also, the percentage of training creative talents should be accompanied with occupational safety through providing appropriate to help

employees to serve their mind for better service. Given to the research findings, in Maroon Petrochemical Company, the employees' occupational safety can be introduced as the most effective factor to achieve job motivation.

Job safety is one of the important concerns of organizations to which a main part of mental energy of the employees is allocated and sometimes, it causes problem for employees and organizations. In the present age, job safety is considered by a new view, i.e., enabling and training human. In the new concept of job safety, organizations should depend on individuals; that is, organizations should provide necessary opportunity to enable their employees in specialized aspects, scientific venture, experiencing, job satisfaction, behavioral satisfaction, communication satisfaction, thinking and consciousness to help the employees to meet social and specialized expectations of the organization as well as providing job safety.

Given to the obtained results, two variables of job safety and wage and salary as (health factors) should be highly considered. According to Herzberg's theory, these factors are not directly related with individuals' work activity; however, when the quality is decreased, dissatisfaction is caused. The research findings are inconsistent with Herzberg study results. As he believes, the external (hygiene) factors are necessary in work and lack of them causes no problem. However, the internal (motivational) factors are encouraging factors. In an investigating, Portuguese doctors were willing to change their job due to low wage and salary (Vieira *et al.*, 1995). Salary can be considered as a strong stimulating factor in motivation and if salary is not paid fairly, employees will be dissatisfied. As the second priority by the employees of this center, in fact, the selection factor of wage and salary can be considered as the employees' expectations compared to other jobs. The research findings obtained by Golchin (1993) revealed that 88% of nurses were dissatisfied by their wage and salary due to their work's difficulty. Although most of the studied people were official employees, their considered job safety as the most effective factor in job satisfaction since creating job safety and regulations for basic support of employees is the most important factor increasing their job satisfaction. Doctors consider job safety as the most effective factor in their occupation due to uncertain future and improper planning (Hagigi, 1990). Job safety depends on policy, rules and regulations.

Therefore, considering removing economic problems through paying appropriate salary and wage and applying rewarding and punishing systems as well as creating welfare facilities for employees provides internal motivation. This fact can finally increase job satisfaction and improve their performance.

Given to the research findings, managers of each organization are suggested to investigate a more comprehensive image of employees' job satisfaction in their organization to achieve predetermined organizational objectives. They are also suggested to identify and prioritize factors affecting job motivation in their organizations and attempt to train creative employees' talents through providing job safety. Managers are also recommended to consider economic problems of employees to create a safe context to achieve organizational objectives for employees' satisfaction and their better performance.

What encourages employees to hardworking highly depends on personal welfare and increasing human relations and the considered work type. Good work environment, interesting work and actual perspectives regarding personal change attracts qualified and competent employees. The responsibility due to job, the operational variety caused by job and the significance of job have been identified as the main factors influencing the employees' motivation.

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