

Identifying and Prioritizing the Motivational Factors of Employees through MCDM Approach

Hamze Nejad Ali¹, Motaghi Monika ^{*2}, Fathi Hafshejani Kiamars³,
Seyed Reza Tabatabayi Kalajahi⁴

¹.M.S Engineering Management, Department of Management System and Productivity, Faculty of Industrial Engineering, Tehran South Branch, Islamic Azad University (IAU), Tehran, Iran.

².P.H.D Student of Health Care Management, Department of Health Service Management, School of Management and Economics, Science and Research Branch, Islamic Azad University (IAU), Tehran, Iran.

³.Assistant professor, Department of Management System and Productivity, Faculty of Industrial Engineering, Tehran South Branch, Islamic Azad University (IAU), Tehran, Iran.

⁴. M.S in Educational Management - Islamic Azad University Saveh Branch .Department of Educational Management, Faculty of Human Science, Saveh Branch, Islamic Azad University (IAU), Saveh, Iran

ABSTRACT

Nowadays in project management world, managers have become more focused on human aspects in spite of the fact that the technical and technological domains have become more complex and expanded. Therefore, the need for development of soft skills in project managers has been more and more felt. One of the most important factors increasing job satisfaction and hence, increasing the productivity of human power, is the improvement of motivation. In Project- based organizations, the manner of preserving and improving the motivations of employees is different from those of the other organizations because of the special specifications of the projects. The present research tries to compare work motivation in traditional and project-based organizations to put forward an operational definition of work motivation to identify and assess the motivational factors in organization, and then it shall prioritize these factors through multi- factor decision making techniques. Finally, we shall study the effect of these factors on improving the project management system regarding the priority of motivational factors. In this study the effective criteria are included as Perceived equity (0.268), leadership style (0.257), Work climate (0.167), Work objectivity (0.167) and Employee development (0.141) based on priority

KEYWORDS: Motivation, project management, MCDM, project-based organizations

INTRODUCTION

one of the humanistic aspects should be considered in a project team , is the motivation improvement in team members. Today , organizations are moving toward project – based method . The project provides special conditions for the team members due to its special specifications (having specified begin and end points, limited resources and uniqueness of it), and these circumstances may cause different effects for the members. On the other hand, decrease and increase in effect level of human labor during the project is various, while the effort level of human labor in non-project activities of the organization is mostly constant. In addition, some other differences exist between current activities and project ones which cause differences in morale and needs of organization members in team or an entity .Therefore, aim of this study is to answer following questions:

✓ what is work motivation ?

✓ what is the difference between motivation factors in traditional and project – based organizations ?

✓ How influences the importance of effective factors on increasing the motivation in a project – based organization and how is the prioritization of them in improvement of management system of the project ?

Ravi kiran (in 2010) provides a study about making motivation in personnel of project – based organizations. In this study , first the workers , in a project – based and traditional organizations , are put along together and are compared to indicate the operational definition of work motivation The researcher has analyzed the key and effective factors in motivation of the workers. Five main factors specified in making motivation which are considered and discussed by considering the above issues in project management system, with providing the management proposals. Some limitations of this study are: not to consider different stages of project , criteria of leadership style in project management and the national and organizational culture.

In another study, Tabasi brothers (2009) have studied the education, motivation and efficiency in a project. In this study, regarding to the relationship between organizational efficiency and strategies and also its human labor, the function and education of workers and also methods to improve motivations in management of human resources through audit have been studied. Method of analysis is descriptive and kind of it is field study. Results of the study show the obstacles in improvement of motivation and also solutions to solve this problem in Iran. And finally shows the effect of non expert workers on quality and advancement of executive projects in related organizations.

In another study, Bernard Shcmit (2007) has discussed the motivation in project management and perspective of project management. This study shows the abilities of performance of the project manager related

*Corresponding Author: Motaghi Monika, P.H.D Student, Department of Health Service Management, School of Management and Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran, monika3005@yahoo.co.uk

to the project team to reach the aims of the project as one of the main factors to succeed a project in an organization. It is a field study and the researcher has provided conclusion and suggestions through distributions of questionnaires among 115 managers of projects from various countries. This study provides proposals in order to improve future motivations in project team members, by answering questions such as whether a project manager can improve motivation or create it on his/her own, despite organizational culture which has a negative effect on employees' motivations and also by illustrating the diagram of work and motivation levels in different systems of the project.

In this study, first, different aspects of work motivation based on motivation theories have been discussed and following it, different factors of work motivation have been compared in traditional and project-based environments. According to the studies done and also using Delfi method, 5 main criteria and 21 indicators were recognized. Prioritization of these factors was done by Analytical Hierarchical Process (AHP) method and distribution of questionnaires among expert managers of a dam construction project. Finally a new pattern was established in order to create work motivation in a project team by removing limitations in the previous studies, which can help project managers improve their team's motivation.

-Definition of motivation

Psychologists have provided different definitions of motivation regarding to their perspectives. Team "motivation" was first derived from Latin term ("moo") meaning movement and its English term is "motivation".

Motivation means a force which causes the people to behave in a special manner. In view of management the aim to create motivation in employees is such that their behaviors have the most benefits to the organization. Since researchers of motivation try to discuss how the behavior gets energy and how it leads to special aims, the study of motivation is a seek for those "primary conditions" which give the behavior, a force or direction. Whenever primary. Conditions are considered for a powerful and leader behavior, we have entered the motivation territory. Motivation is a force which causes a movement in human. In fact, each factor leading to an activity (internal or external) of a live creature is a kind of motivation. Generally, motivation is an initiator, leader and continuity factor to the human behavior. In another world, motivation is:

- 1- whatever empowers a persons' behaviors
- 2- whatever leads these behaviors or makes a special direction to it and
- 3- whatever preserves or strengthens the behavior.

-Its arguable history

The question of the causes of a human behaviors, has been existed generally, in human life from the beginning and it can be tracked at least from Aristolle time. Plato (Socrate's student) believed that spirit relates to three factors of body, emotions and logic and has arranged in a hierarchical manner. Aristolel (Plato's student), confirmed this view and made variations in applying the terms related to motivation. In Aristolel's view, body and emotion components related to the body and were motive in nature, and provide motivation for improvement and body sedation and sense experiences such as enjoying or pain. These two parts were the basis of illogic and stimulant motivation forces. Logical part contained all the reasonable aspects of the spirit and related to thought, and in nature is reasonable and had the properties of intention.

Ancient Greeks provided the first theoretical cause of an stimulant activity, by assuming these three factors to be evident (a spirit which is set hierarchically): body trends, enjoys and pains of sense and intentional attempts. Hundred years later, three divided spirit of Greeks reduced to a two division spirit included body desires and mind intelligence.

Thomas Aquinas suggested that the body provides illogical motivation stimuli and is based on enjoyment, while mind provides motivations which are logic and are based on intention. Here, oppositions are also focused. After renaissance, Rene Dechart recognized the body as an inactive factor of motivation by distinguishing between active and inactive aspects of motivation, and recognized intention as its active factor. In his view, body has totally a physical nature and has food motivations and responses the environment through senses, reflections and its physiology. In order to find out body motivations, physiological analysis was considered. Mind had a spiritual, nonmaterial and thoughtful nature and had an objective intention. If they wanted to realize objective motivations they would have noticed intention analysis. Dechart, like his previous psychologists, believed that motivations could be derived from body or intentions. For instance, holding the hand above the fire motivates body desires, but stimulates intention desire. Hence, intention was always a motivating force and began the action and directed it. Dechart provided his first high theory of motivation for philosophy by assigning exclusive powers of motivation to the human intention. Putting away this question that from where motivation had come, philosophers had to determine from where intention had come? And this made philosophy complicated. Hence , new psychology found itself seeking for original motivation which was less ambiguous and more modern or machinelike and from then attempts began not only in field of philosophy but also in physiology and biology.

In seventeenth and eighteenth centuries, Hobbes stated that despite the cause human says for his behavior, the original causes of his behavior is his trend to obtain enjoyment and avoid pain. The belief " hedonism" still plays an important role in some motivation theories.

-Occupational motivation theories

Motivation concepts have been stated in theories such as needs theory, equity theory of aim determination and occupational properties model.

In these theories some properties of work have been noted mostly that increase the motivation of personnel. The first collected scientific in field of occupational motivation belongs to Fredrick w, Taylor ,

Elton Mayo and Fritzro Tlisberg and William Delixon did their studies in Hawthorne company from 1927 to 1932 and it was known as "Hawthorne studies" .They concluded that human factor is very important in work environment. In 1930s Weber , Fuller and Bendix established studies of motivation on a content view , by focusing on design management . On this basis , A . H . Maslow stated theory of hierarchy of needs. In this perspective , human has a hierarchy of needs intrinsically , such as physical, logical , security , belonging , respect and self actualization needs.

Two factory – theory of Fredrick Herzberg is of need theories which appeared during 1950 to 1960 by dividing occupational satisfaction factors into motivation and healthcare factors .

McClelland established his motivation theory in 1961 named "need to succeed" these motivation concepts later led to occupational properties – model .

Starting the processing theories , work motivation got a high score in 1960 s . In processing theories it was tried to explain process which stimulates a person. According to "equity perspective" provided by Adams , each person compares his / her inputs to the organization and its outputs to inputs and outputs by others . If this comparison was fair , the person finds more and enough motivation to work in that organization .

Vroom (1964) applied "expect theory" relating to research about occupational motivation and today this theory is one of the most valuable theories in industrial and organizational psychological theories . During the last years of 1960s, E. Locke proposed in his theory named "determination of aims " , that one should try to determine a specific aim . On this basis , it can be realized that occupational motivation of individuals is described by factors such as occupational security , job attraction , job competence , acknowledgement , good payment and feedback and to recognize individuals by manager or colleagues .

During recent years more attentions have been considered to explain motivation factors, based on identifying motivation origin, such as challenging works, feedback of performance, good nature of the work, realizing of duties, importance of duties and amount of intention in work. Latest research in this field belongs to participative management, communication and uniformity and their effects. In the next step, work motivation will be compared in traditional and project– based organizations .

Comparison of work motivation in traditional & project– based organization.

In traditional organizations, submission of powers or authorities and communication direction is from top to bottom and follows the vertical structure. Also, the criterion of assessing the individuals performance in an organization is to do a specific duty and focusing on customers is low .

On the other hand, a project has a temporary structure and plays a role in production or unique services. In order to execute the projects, multi capabilities are needed. A project is known with its properties of executive limitations and also its multi uncertainties of environment.

Therefore, in traditional organizations recognizing work motivations through occupational design is feasible by factors such as degree of freedom, level of applying the capabilities and taking the feedbacks to advance .

It can be concluded that work motivation in traditional organizations is more limited than project– based ones. Studies in field of creating motivation in project– based organizations are less than those traditional ones. Nevertheless, in addition to the mentioned factors, other factors such as work variety and challenging nature of the work for project employees in project environments are evident.

In construction projects, structure of organization becomes strongly flat, so accessing an employer, with deeper focus and by multi duties– teams with enough authorities, is of the key factors of succeed. Of other important factors to increase motivation in a project are clarity of aims, feedback of performance and communications among team members. Briefly, it can be concluded that work motivation structure in traditional and project– based organizations might have no significant difference and employees expectations from their work environment might be constant, but obviously, origin of creating motivation is different in these two environments.

-Research and its necessity

Failure or succeed in construction projects in this world depend on the effective function of organizations and executive entities related to them. Within these organizations or entities, human labor and its function plays an important and determinative role. One of the necessary factors in personnel behavior is occupational motivation. "Motivation is the initiative, determinative and consistency factor in an occupational behavior" .

This role has been recognized in about 1990 in developed countries and industrial or organizational psychologists try to identify effective factors on occupational motivations. Unfortunately in our country, less affections have been considered to effective factors on creating motivation from the project managers and their most attention is focused on quantitative subjects of projects. Identifying the motivation factors in project– based organizations and also development of soft skills of project managers to increase the project– team motivation, will increase the efficiency of employees and benefits and decrease the costs of the project. On this basis, and in order to create motivation in contract– organization employees, following questions are arisen:

- 1- what are the most important factors to create motivation in employees, in a project– based organization?
- 2- how is the prioritization of motivation factors in these organizations?

MATERIALS AND METHODS

This study is an application study in terms of classification based on aim. In this study real solution of problems has been provided, using principles and basic theories in creating motivation in employees. Also, field method and case study were used from a dam construction company. Regarding to the nature of first question of the study about classification of main factors to create motivation of employees in project-based organization, AHP technique was used to analyze the data. In other words of definition of problem, in this stage, according to the competitive option (criteria), AHP tree has been illustrated according to what is show in figure 1.

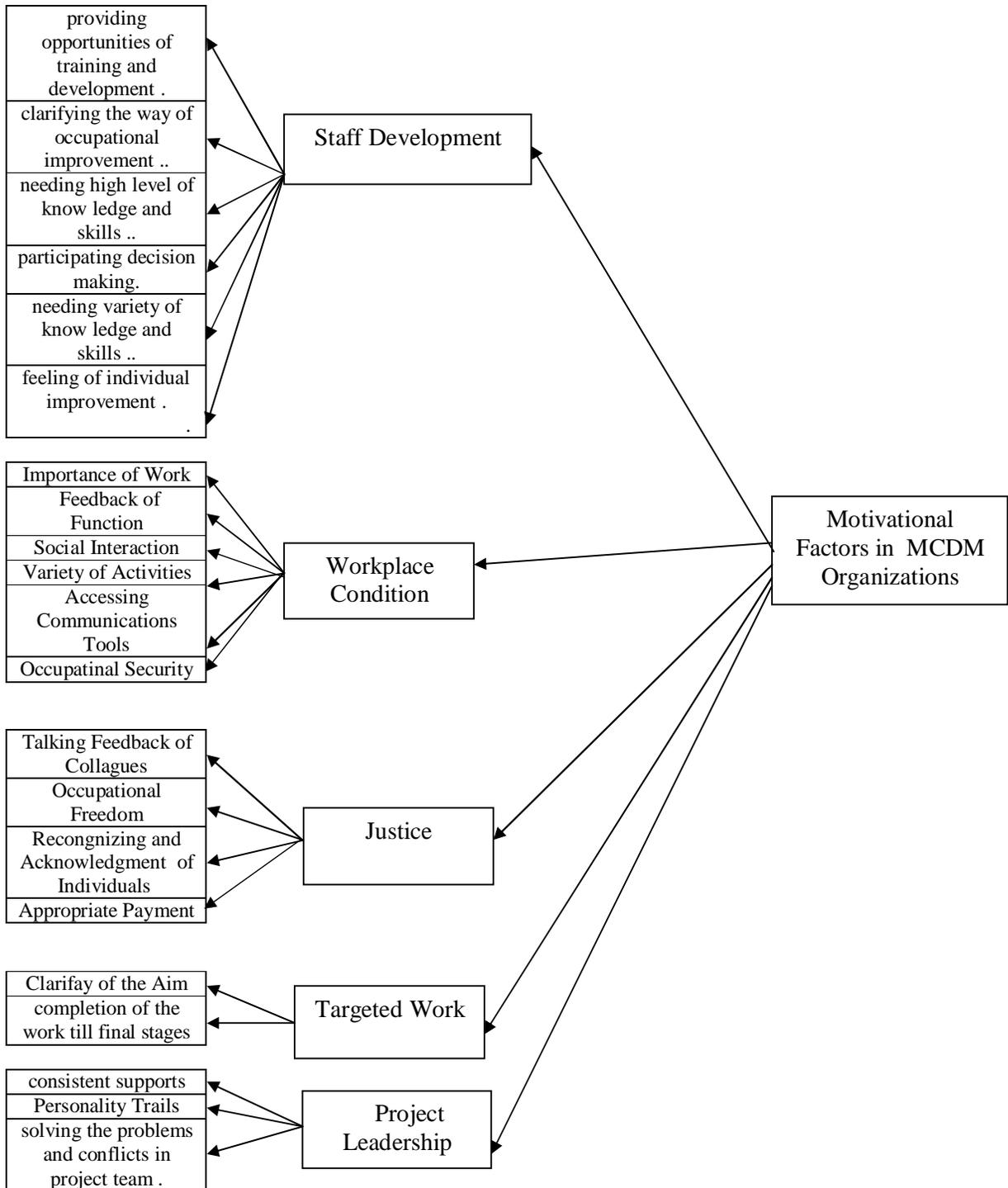


Figure.1 decision tree of motivation factors in project-based organizations ,derived from Campion 1988

Statistical society and subjects

statistical society of the current study contains experts , who act in project management of a dam construction project. Common property of this statistical society is the experts` specialty which project

management. Numbers of people in this society is 18 whom all were selected according to total number of technique, as the sample diagram.1

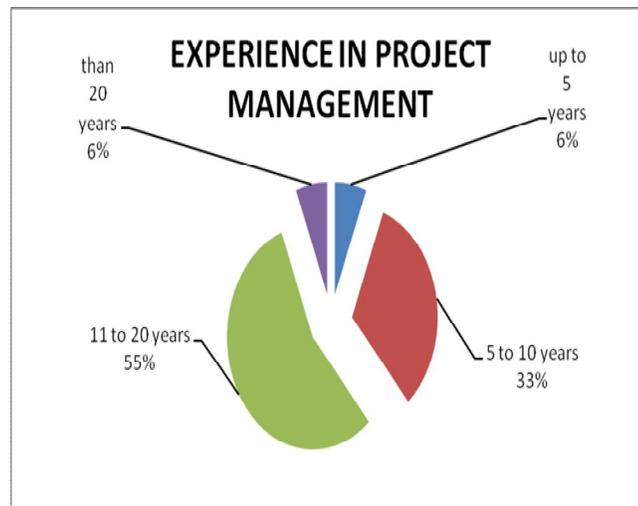
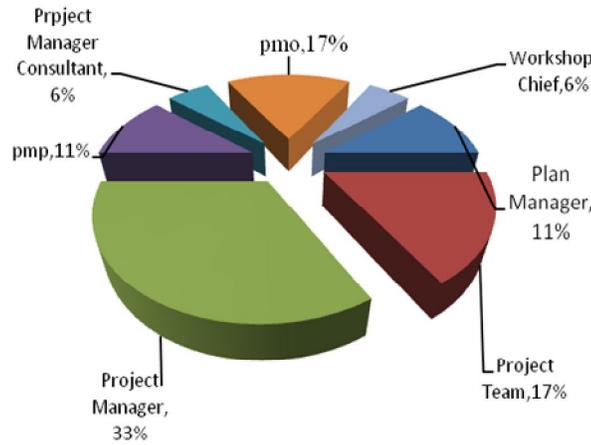


Diagram 1. properties of statistical society

TOOLS AND METHOD OF GATHERING AND ANALYSIS OF DATA.

Gathering data was done by two methods: library studies (texts, articles, internet, ...) and field study . In this study, library study method was used to gather data and codify the literature. Also, to identify the assessing criteria of work motivation, by selected criteria from Campion studies in 1988, these factors extracted and then localized in Delfi method by experts (managers of project).

Recent studies by Campion show an internal credit of 0.85 for these criteria. These criteria have been provided in table.2 to be analyzed as name of " make decision " tree, after confirmed by experts .

In the next stage, a questionnaire was used to make prioritization of factors and creating decision making models. This questionnaire distributed among experts of management of human resources and behavioral science, whom were project managers in a dam construction project .

In prioritization of factors, AHP technique was used. In this technique experts were asked to complete pair comparing matrix, using the band of professor Saati. In this study, EC (expert choice) software used to calculate incompatibility rate and solution, and Excel software used to extract final matrix in group decision making and combination of experts opinions and also to extract specific diagrams.

Permissibility and consistency of the questionnaire

In order to assess the permissibility of content of the questionnaire, perspectives and ideas of experts and specialists were taken and required reforms done on the questionnaire. Also, in order to determine its consistency reliability, α krunbach coefficient and reliability test were used in such a way that, first the questionnaire was distributed, and after gathering it, α coefficient was estimated. As the questionnaire had enough validity of 0.8 , its results were used for final study . In terms of consistency reliability of determination tools , presence of

incompatibility rate in AHP technique is itself a trend to provide and supply the consistency of determination tools, which in table .1 all main criteria have an incompatibility rate of less than 0.1.

1	Main criteria pair comparison matrix	0.05
2	pair comparison matrix of employees' development	0.04
3	pair comparison matrix of work climate	0.04
4	pair comparison matrix of equity criterion	0.06
5	pair comparison matrix of work objectivity	0.00
6	pair comparison matrix of leadership style	0.00

Table.1 incompatibility rate of pair comparison matrices

Data of this analysis show the origin of creating motivation among employees. Prioritization making of these criteria are shown in table.2. In this study, project management selected leadership style after equity and before work climate, work objectivity and employees' development. More details are provided in the following

Priorities	criteria	W_i
1	equity	0.268
2	Leadership style	0.257
3	Work climate	0.167
4	Objectivity	0.167
5	Employees' development	0.141

Table.2 Prioritization of main criteria

weight	Subdivided criteria	rank	main
0.394	Good payment	1	equity
0.287	Reorganization and acknowledgement	2	
0.223	Freedom in work	3	
0.094	Taking feedback of managers and colleagues	4	
0.333	Consistent support of manager	1	Leadership style
0.333	Personal characteristics of manager	2	
0.333	Solution of problems and conflicts of the project team	3	
0.366	Work importance	1	Work climate
0.201	Taking feedback of work	2	
0.139	Social interactions	3	
0.128	Variety in actions	4	
0.094	Job security	5	
0.072	Accessing to communication tools	6	
0.667	Clarity of objectives	1	objec tivity
0.333	Completion of work until finishing	2	
0.233	Identifying the improvement way of the job	1	Employees development
0.202	Providing opportunities for learning	2	
0.180	Needing high levels of knowledge	3	
0.143	Participative decision making	4	
0.129	Needing variation in knowledge and skills	5	
0.113	Feeling of individual improvement	6	

Table.3 Prioritization of factors according to the main criteria

Equity

This criterion demonstrates the equity perceiving by the employees in terms of financial or non-financial aspects. This criterion follows the equity theory which shows the relation between income and individual attempts. Mentioned factors are also affected by work climate. Project employees respect the feel of responsibility very much. Employees' expectations are then a recognition of them and paying attention to their work, freedom in activities and taking the feedback of manager and colleagues about the works carried out by them. On the other hand, financial payments include salary payment and consistent and inconsistent bonus. These payments are effective when related to the function of the employee. Generally, employees have more motivations when their financial or non financial bonus are related to their performance. Therefore, equity in payment of financial and non- financial bonus is the most important factor to create or stimulate motivation of employees.

Leadership style

Of the main factors which decreases the motivation of project team members is to lose the support of superior management and diversity of opinions or disputes among the members. Therefore consistent supports and solving the disputes among them can have a very high importance. In an organization, manager must involve other employees according to the objectives but shouldn't necessarily use commanding tools to do this. Schalwbe (2004) has discussed that penetration to people's heart is necessarily related to the power. He demonstrates that this power, is a potential ability to control other's behaviors to do a desirable work. A project manager who

wants to try to increase the motivation of employees should have a participative leadership style. Members of team, whether known the manager as their partner or a dictator leader, have to response his / her attempts to increase their motivations.

Work climate

Work climate in an organization is a set of shared perceptions of employees. which has resulted in gathering the organization components. Hence, good work climate is obtained when employees have a shared objective and have collaborative and consistent interaction to do their duties. Regarding to the wide work collaboration among team members, the way of communication among them is very significant. Project employees try to provide their advancement by accepting and doing challenging work. Hence, good work climate is very important for them. Accessibility to information related to the project and facilities to have formal and informal contacts for employees lead to their better efficiency. Job security is one of the factors of healthcare in two– factor theory of Herzberg and according to the last studies, is of the main necessities for better efficiency or function .

There fore, work climate criterion is one of the most important factors to create motivation among the personnel.

Work objectivity

Work objectivity criterion includes two factors, clarity of objectives and completion of the work until final stage. In goal setting theory, importance of objectives has been demonstrated well by Edwin Locke. According to this theory, clarity of the objectives leads to increase the efficiency in work. It should be noted that identified objectives should be related to the current resources and also should be accepted by employees. This is done by identifying the project scope and writing the project scope statement and work breakdown structure (WBS). Work structure, divides the project into assignable parts (product / service). Employees accept responsibility of these assignable parts either individually or in group. Hence, division of the project into specified parts and countable work parts and also classification of the pacts into specified duties will cause the objectives of the project to divide into specified duties also and this will increase motivation of project team employees .

Employees ' development

This criterion is effective in internal (income) motivation of the individuals. Applying correct policies of promotion and providing opportunities for learning and development are of the effective factors on increasing the motivation. Participation and involving team members in discussions and decision making will allow them to be able to show their abilities and skills. Of other effective factors on motivation of personnel is to create the need for variation and high level of knowledge and skills. Also employees will feel more advancement regarding to their skills and attempt to realize discovered skills and abilities.

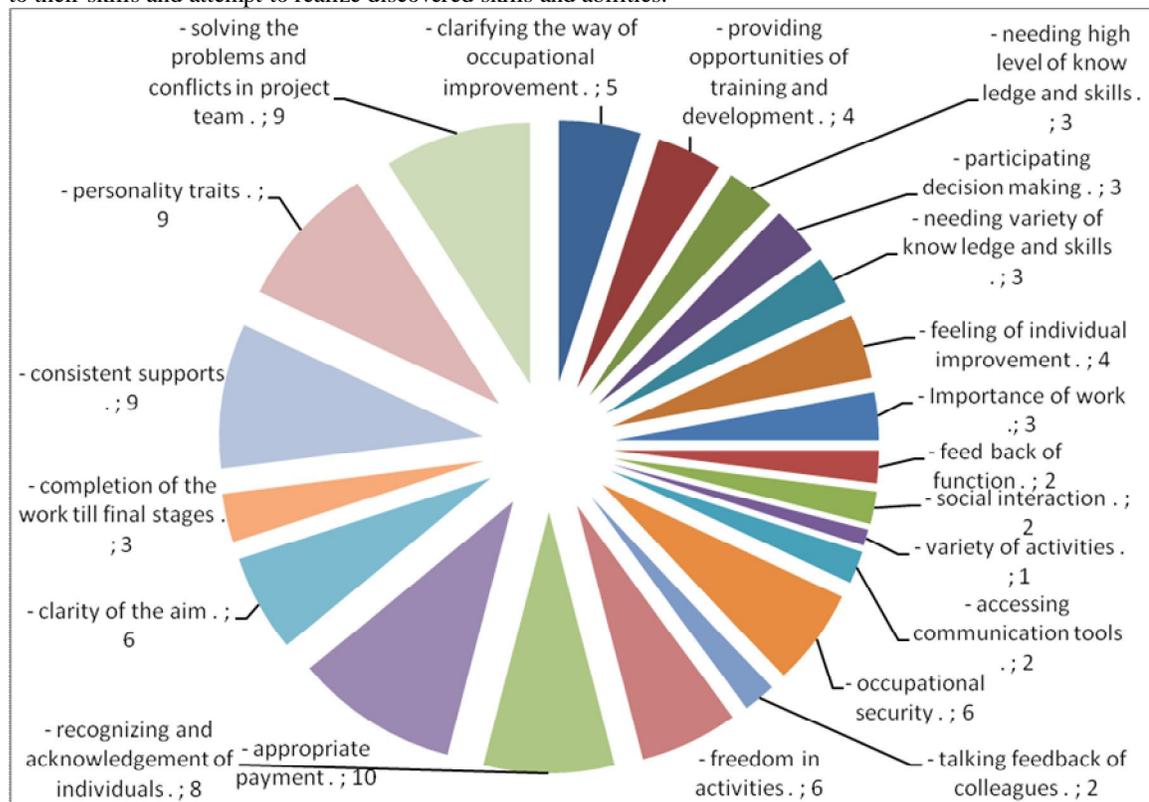


Diagram 2. prioritization of factors according to the main objective

Conclusion and future research

In this study, in first stage, recognizing and evaluating motivation factors in project-based organizations and then, in the next stage, prioritization of these factors, were done using multi-criteria decision making techniques. To do this, first, traditional and project-based organizations were compared. Concept of motivation has no meaningful difference in traditional or project-based organizations but the origin of creating motivation is different in them. In this study most effective criteria on improvement of employees' motivation in project-based organization were equity, leadership style, work climate, objectivity and finally employees' development, respectively. In future studies, assessing the relation among variables can be done by other techniques like ANP. Also, external organizational factors such as role of society and family have not been considered in this study which can be studied in future. This study also shows about 50% of motivation factors related to the management specifications and salary and payment of employees. This reflects that to succeed a project enough resources should be noted at the beginning of project to assign the project activities in these fields.

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