

The Impact of Human Resources Management on Operation Management and Increasing the Productivity (Case Study: Shahid Hasheminejad Gas Refinery)

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Abstract

The present paper aimed to study the impact of human resources management on operation management and increased productivity of Shahid Hasheminejad Gas Refinery from the perspective of its managers. Statistical population included all senior and middle managers (N=97) of Shahid Hasheminejad Gas Refinery whose age was between 30-60 years old. This study was a descriptive-analytical research and regression and correlation tests were used to test the hypotheses. The required data were collected by an author-made questionnaire with 36 questions. Validity and reliability of this questionnaire were confirmed by content validity and Cronbach's alpha, respectively. The collected data were analyzed using SPSS software. In data analysis, 5 and 1, respectively, represented the highest and the lowest score. Input-process-output was the model used in this study. The conceptual framework was developed as a model to understand the ways to increase the productivity of the studied refinery through the impact of human resources management on operation management. The results indicated that there is a significant relationship between the impact of human resources management on operation management and increased productivity of refinery. Finally, according to the views of the respondents, some recommendations were offered such as reform of the education system, considering the impact of training courses on improving the skills and degree of the personnel of refinery, reform of the salary and bonus system, workplace reform, discovery of talents, reform of recruitment system and organizational structures, entrusting the authority to middle-level managers and supervisors to decide about some issues, and implementation of appropriate incentive programs.

Keywords: Shahid Hasheminejad Gas Refinery; Operation management; Human resources management; Productivity

Introduction

Human resources are the main capital of modern organizations. In fact, efficiency and productivity of any organization depends on the behavior and performance of that organization's human resources and employees working in organizations are of indicators to measure the difference between organizations and their progress (Hajikarimi and Bathaee, 2009). In today's competitive world, productivity, as a philosophy and approach based on improvement strategy, constitutes the most important objective of any organization and can link all activities of a society to each other like a chain (Taheri, 1999). In other words, the mission of management and the main objective of each organization is effective and efficient use of various resources such as labor, capital, materials, energy and information (Vaziri, Mansouri, and Adiban, 2010). Since human resources, unlike other organizational resources, is considered as the coordinator of other factors and it is also the most important factor in increased and decreased productivity of organizations, it has a special place and special attention must be paid to (Ansari, Sabzi and Aliabadi, 2010). This role becomes more prominent in service organizations, because human is unrivaled in the area of work and services (Maleki, Mousazadeh, and Ahmadi, 2005).

People like a Noiy, Halenbak, Gerhard, and Wright (2006) define human resources as policies, activities, and systems that affect the behaviors, attitudes, and performance of employees. Organizations that fail to develop the skills and knowledge of its own employees and effectively get use of them, are not able to survive in today's competitive world (Morgan, 2007: 141).

Human resources management is defined as a system for correct and proper use of human resources in order to achieve predetermined goals of an organization. Human resources management is to sustainably manage an organization's most valuable asset. The objective of this system is to provide human resources, keep them in the organization, and guide them in order to approach towards achieving the final and strategic goal of the organization (Cole, 2002). Studies show that manager have paid more attention to quality, flexibility, and unique competencies (as a source of competitive advantage) since 1980s. In fact, from the early years of the 1980s, Strategic management of human resources and a strong organizational culture plan have been the focus of attention of many influential management consultants and researchers of applied methods (Deal & Kennedy, 1982). In today's world, the most important factor in development and progress is paying more and more attention to human resources productivity. Human resources is the most important tool by using of which managers can strive to achieve organizational goals (Frank, Eckrich, and Rohr, 1997). Human factor may either waste the physical and material resources or fertilize them (Sarmad, 1993). Human resources is the most important factor in improving productivity . Effective human resources is a major factor in the continued success and achievement of organizational goals (Eastaugh, 2002) and acts as a catalyst and facilitator of increased productivity in organizations (Emami Meibodi, 1999).

Statement of the problem

Because of the changes that have occurred in the last 50 years, business has become very complex and ambiguous. Today, consumers are demanding products with high quality and at the same time with the lowest price and perfect services in the shortest possible time. Nowadays, computers, the Internet, and advanced forms of technology have dominated production and services. In such an environment that is constantly changing, management is a tough responsibility but management of production and operation provides both the necessary tools and principles to help managers to face challenges.

Lack of coordination in organizational duties has always limited the effectiveness of organizations in achieving the basic objectives of shareholders, employees, and society. Operation management is the only task through which managers can directly affect the expected values for shareholders. Operation management can provide high quality goods or services the customers demand through improving and developing the skills and knowledge of those who design and produce these goods and services. As long as the efficiency of operation is kept high, acceptable return on investment, environmental protection, and social responsibilities of organizations can be ensured.

Edward Deming believes that people work in systems but managers work on systems to continuously improve them with the help these people. Therefore, the objective of operation management is to provide a continuous improvement through continuous improvement in the overall performance of the organization. Combination of innovation with price, quality, and flexibility requires coordinated efforts among all organizational activities including finance, marketing, and operation.

Changes in attitudes of managers from cost and efficiency to the concept of value, from mass production to lean production, from manufacturing technology to information technology, and finally from the national economy into the world economy have caused operation management to be

of extraordinary importance in new organizations. All organizations have three main financial, physical, and human sources. Human source is the only that competitors cannot copy it and is the only one that can provide synergy.

To develop high-performance work systems, operation managers should have a close relationship with human resources management in order to employ the employees who are perfectly match with the organization's strategic plans. In this case, increased productivity can be expected. However, it is still controversial that whether human resources management has a direct impact on operation management in order to increase productivity of refineries or not.

The significance of the study

Shahid Hasheminejad Gas Refinery is the only gas & oil refinery of Iran which is located in the most northeastern point of this country. Producing about 10% of total gas of Iran, this refinery provides the required gas for 6 provinces. This refinery is a strategy-based plant that is planned to become the country's top oil and gas refinery by 2015.

The main product of this refinery is gas and by-products include sulfur that is converted into granulated sulfur and betonies fertilizer in granulation unit and gas condensate that is changed into solvent, naphtha, kerosene, and diesel in distillation unit. Hence, operation management plays a key role in this refinery in the production of products by the specialists and skilled employees. In this refinery, 2000 people are working, 990 of whom are formally recruited and the rest are working according to certain contractors.

Operation management should have a direct relationship with marketing and finance units and many problems would be posed if this relationship is neglected. Much of the cost or the benefit a refinery is consumed or produced by operational units. Therefore, this study would be very useful for the two following groups:

Production and operation managers: Operation managers are constantly taking decisions such as how much, at what quality, how long, and with what budget. They need constantly aware of the views of customers and should be able to anticipate the demands.

Employees and workers: Employees have a basic and key role in the production and operation. Effective ways of training, performance evaluation, and increasing the skills and technical knowledge of the staff in the fields of finance, marketing, human resources, and production can be useful to improve production and operation.

Careful attention and addressing the problems of operation management will ensure the stability and continuity of production. At the planning stage, operation management, in order to ensure that human resources programs, is in line with organizational strategic plans, and includes increased knowledge and skills of the employees in the programs, attracts the participation of employees through a proposal system and working groups, pursues the trainings on human communication, motivates the employees and creates an atmosphere of unity and sympathy in order to enhance the spirit of cooperation, and cause the employees to have a higher level of self-control on their own duties through granting the authority and power of decision-making to them.

Previous studies

The results of a study conducted by Hejazi Azad (2005) and Nayeri et al (2004) indicate effective evaluation can increase productivity and the more trained the workforce is, the higher the quality of human resources and the higher the increase in production would be. Alvani and Ahmadi (2001) stated that leadership style, motivational factors, the spirit of competitiveness, physical and mental status, education, and experience are factors that affect human resources productivity.

Ellis and Dick (2003) concluded that the use of participatory leadership style in group activities improves productivity. Kim (2001) reported that Impact of information and

communication technology (ICT) on labor force productivity is significant and positive. Hol Singer (1997) pointed out that education is one of the factors that increase the productivity of human resources. In the model proposed by Anismors and Esmite (1997), organizational values were introduced as one of the factors affecting the productivity of human resources.

Conceptual framework of the study

The main objective of this study was to determine the management strategies of Shahid Hasheminejad Gas Refinery. For this purpose, input-process-output model was used.

Conceptual paradigm shown in Figure 1 is a set of inputs that presents the profile of the respondents by age, education, work experience, and management operation of production, marketing, human resources, and finance that have been attributed to a process. These inputs are designed to achieve specific outputs in order to meet the research objectives.

Factors affecting operation management in Shahid Hasheminejad Gas Refinery are presented in Figure 1. In the process, introduction begins with evaluation, data collection, and analysis using statistical behavior. The conceptual framework was developed as a model to understand the ways to increase the productivity of the studied refinery through the impact of human resources management on operation management.

Finally, a management model for gas refinery is expected to be proposed by providing an appropriate process.

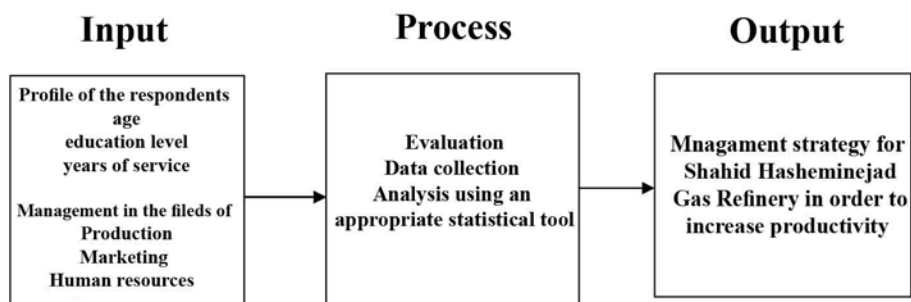


Figure 1: Conceptual paradigm of research

Methodology

In this study, cross-sectional design was used, i.e. to get instant information from a large part of the respondents without the need for the respondents' follow-up for further information (Amin, 2005). Hence, data collection was done in a short period and quantitative and qualitative methods are used with a triangular view to the research.

Participants

Statistical population included all senior and middle managers (N=97) of Shahid Hasheminejad Gas Refinery whose age was between 30-60 years old. A convenience sampling technique was used in this study, because all the respondents were fully accessible and known.

Instruments of the study

An author-made questionnaire with 36 questions was used for data collection. According to Amin (2005), the questionnaires were copied paper and the data were collected directly from individuals. In this questionnaire, the respondents were asked about their knowledge, attitudes, beliefs, and feelings. This type of data collection was helpful, because it provided a description of current events, conditions or characteristics of a population at a certain point of time. Such a questionnaire is useful for producing reliable and valid data from a large proportion of the population with the lowest cost in a reasonable period of time and also is a relatively inexpensive tool for quick access to information. As a form of data collection tools, questionnaires, since they

are anonymous, make it possible to access to accurate information when the information is confidential and sensitive.

The questionnaire used in this study consisted of two parts:

- The first part deals with the demographic profile of the respondents such as age, education, and work experience.
- The second part measures the level of effectiveness of operation management of Shahid Hasheminejad Gas Refinery in increasing the productivity of human resources management.

Data collection procedure

After the proposal of the research was approved, the necessary permits were received from the refinery to hand out the questionnaire among the employees and heads of departments. The raw data were edited in place and then coded and analyzed. Mean and frequency of quantitative data were calculated and correlation test was used to study the relationship of operations management with production management, marketing management, human resources management, and financial management in Shahid Hasheminejad Gas Refinery. All data analyses were done by SPSS software.

Results and conclusion

Statistical population included 97 male employees of Shahid Hasheminejad Gas Refinery (All employees of this refinery are male). Most of them had a bachelor's degree and rest of them had a master's degree. Almost half of the respondents had a history of serving of 10 to 20 years in the refinery.

Level of management strategy in Shahid Hasheminejad Gas Refinery in terms of human resources management showed the interpretation of effectiveness in increasing productivity.

Table 1: Regression model of hypothesis

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.859 ^a	.841	.841	6.56984	1.909
a. Predictors: (Constant), Human resources management					
b. Dependent Variable: Y					

According to above table, correlation coefficient between human resources management and productivity of refinery is equal to 0.859. So, there is a significant relationship between these two variables. In other words, improvement in human resource management will lead to increased productivity of refinery. Based on the data shown in Table 1, coefficient of certainty is 0.841 which indicates that 84% of the variation in the dependent variable (productivity of refinery) originates from the independent variable human resources management).

Table 2: Effectiveness of regression model

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	954683.399	1	954683.399	15698.145	.000a
	Residual	9825.548	95	51.564		
	Total	964508.947	96			
a. Predictors: (Constant), Human resources management						
b. Dependent Variable: Y						

$$\begin{cases} \beta_1 = 0 \\ \beta_1 \neq 0 \end{cases}$$

Conformation of this hypothesis showed that regression coefficient will not be zero. Knowing that p-value is equal to 0.00 (less than 0.05), the model is effective at a significance level of 95%.

Coefficients of regression model are presented in Table 3. This table indicates that productivity of refinery increases as human resources management improves.

Table 3: Coefficients of regression model

Table 16-Coefficientsa						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	32.637	1.113		31.005	.000
	Human resources management	4.578	.001	.859	101.158	.000

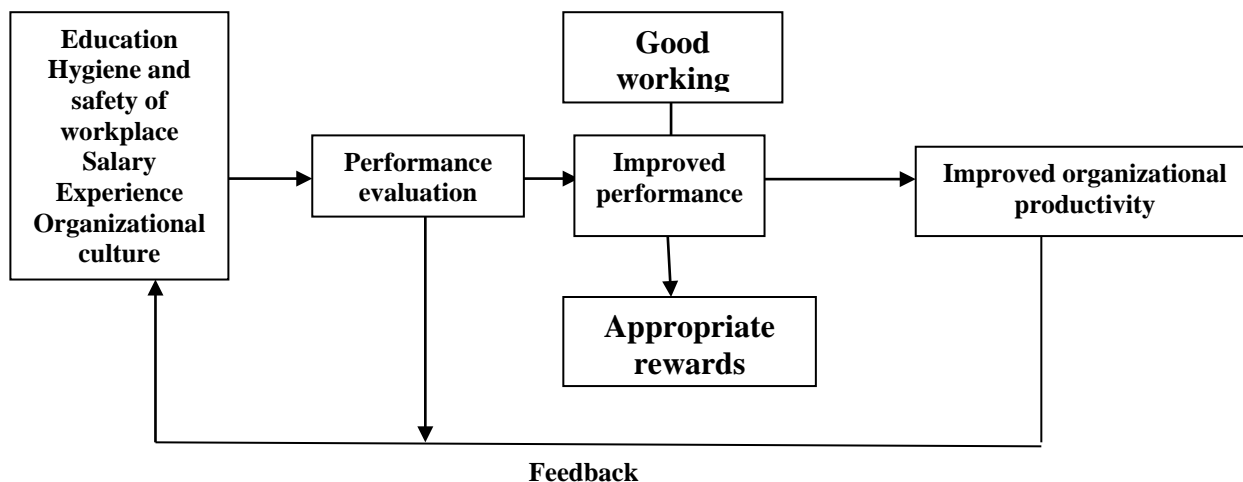
a. Dependent Variable: Y

According to Table 3, the significance level of human resources management is equal to 0.00 which is less than 0.05. This means that there is a significant relationship between human resources management and productivity of refinery at a significance level of 95%. So, the following model can be proposed for the research hypothesis:

$$Y_i = 57.781 + 4.578 * \text{Human resource management}_i$$

This model suggests that with an increase of one unit in human resources management productivity, productivity of refinery will increase by 4.578 units. Accordingly, there is a significant relationship between human resources management and operation management in increasing the productivity of refinery and this means that increased productivity of human resources management leads to increased efficiency of operation management and thereby improves the productivity of refinery. As a result, the research hypothesis is confirmed.

The following graph is offered based on questions of the questionnaire handed among the respondents.



Recommendations

According to the concept of human resources management, the following items are recommended:

- Because of lack of positive academic impact of training courses, most employees are not willing to participate in classes that are held in their organizations. In order to motivate the

employees to take part in such courses, some motivational points such as financial remuneration and giving a higher equivalent academic degree to the participants after passing a minimum hours of courses should be taken into account. Raufi and Ghouchani (Robbins, 1995) reported the positive impact of on-the-job training on the efficiency and productivity of principals and the staff of schools.

- The strengths and weaknesses of employees should be identified by performance assessment systems and the results should be used for assigning the tasks and taking remedial actions.
- Managers should hold professional and educational courses for newly hired employees and recruitment procedures should be revised and updated. Abili and Jahed (2009) stated that factors associated with training and educational opportunities are of organizational factors affecting the productivity of middle-level managers.
- Appropriate ways should be used to recruit human resources. Those interested in working in the organization should be the top priority for employment. It is recommended that an appropriate organizational culture to be developed in the refinery and, based on which, assess the abilities and interests of newly recruited employees. Nasiripour found a positive relationship between organizational culture and productivity of employee.
- Reward system should be effective and efficient. This system should be developed in a way that leads to high organizational productivity. As the first step, reward system should be in line with the objectives of an organization. Reward system has two main goals including the selection of skilled personnel and appointing them to higher positions and motivating all employees the same to achieve higher positions. Compensation and reward systems are of factors affecting the productivity of human resources. Reward systems, both directly and indirectly (through motivating the staff), play a very important role in increasing the productivity of human resources (Maleki and Nabatchi, 2002).
- One of the fundamental responsibilities of managers is to find the potential and actual talents of employees. Organizational objectives can be easily achieved through the proper use of human resources. By recognizing the talents and abilities of each individual, managers can find skilled and professional employees and appoint them to specific occupations.
- Human resources manager must be aware of the various strategies and procedures of recruiting new staff. The manager should be informed of the retirement time of old employees to come up with ways to substituting them by new active employees.
- Employment in an organization should be based on the level of interest and motivation of the applicants.
- Since Shahid Hasheminejad Gas Refinery has a strategic position in Iran, recruitment methods should be appropriate and salary system must be highly competitive, as the employees never think about finding another job.
- Appropriate investment in human resources reduces many of duplications and prevents increased investment on other parts of the organization.
- According to the answers of the respondents, creating a pleasant and happy atmosphere in workplace makes employees active and energetic. Thus, it is a manager's duty to provide a pleasurable working environment for the employees. Honary et al. (2006) found that environmental parameters such as suitable physical conditions of workplace, hygiene and safety, suitable tools and equipment, neatness and vitality of the workplace, discipline and ergonomics, quality of raw materials, and system of maintenance of equipment and machinery are effective in productivity of human resources.

- Reward system in the refinery should be reconsidered and financial rewards should be given to those who offer the best solutions, are highly motivated in their job, and identify their weaknesses and try to resolve them. Considering the role of reward systems in the productivity of human resources, it seems necessary to study different types of rewards, payment of rewards, reward systems, and so on. It is noteworthy to say that the reward an employee receives from the organization is not enough to satisfy him/her and full satisfaction is obtained only when an employee receives the reward he/she expects (Ray, 2002).
- A new retirement system should be established. There are some job positions in the refinery that are different from others and require hard working. Therefore, the retirement time of these special jobs should be revised.

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