Factors Influencing Creativity and Innovation of the Senior Managers of Iran University of Medical Sciences-2010

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Abstract: The overall purpose of this research is to determine the most important of individual and organizational factors that influence on creativity and innovation of the senior managers of Iran University of Medical Sciences. A sample of 66 managers was used to achieve the research purpose. Data collection was done through questionnaire. The questionnaires were handed out to all senior managers of university and after being collected were analyzed by the statistical software SPSS. The most significant factors influencing the creativity of the people, under the study were organizational factors (average 68.2%) and the most important factors influencing the innovation of people, under study were individual factors (average 89.4%). By studying the factors that can influence them, university understand that it is necessary to pay more attention to recruit creative managers in university and focus on factors relating to knowledge, information and expertise.

Key words: Creativity, innovation, organizational factors, senior managers, significant factors, Iran

INTRODUCTION

Increasing global competition, coupled with rapidly changing technology and the shortening of the product life cycle has made corporations more vulnerable to failure than at any time in the past. Therefore, it has become of the utmost importance of organizations to address issues creatively. Post-industrial organizations today are knowledge-based organizations and their success and survival depend on creativity, innovation, discovery and inventiveness. An effective reaction to these demands leads not only to changes in individuals and their behavior but also to innovative changes in organizations to ensure their existence (Read, 1996). It appears that the rate of change is accelerating rapidly as new knowledge, idea generation and global diffusion increase (Kim and Mauborgne, 1999; Senge *et al.*, 1999). Creativity and innovation have a role to play in this change process for survival (Martins and Terblanche, 2003).

Creativity may be the most important tool in a manager's arsenal. Without creativity, the firm becomes predictable. The predictable firm may be at a competitive disadvantage. Creativity goes further then creative managers seeking new solutions to product problems. Creativity can lead to new and better solutions to business and customer problems. Thus, creativity may be the key to market success and improved operating efficiencies (Herbig and Jacobs, 1996). In fact, many researchers have noted that a focus on merely continuous improvement, lacks vigor in the new world since, many companies are likely to confront competitors' innovations that undermine their area of competence (Kambil *et al.*, 2000). Continuous improvement provides a comfortable logic to gradual evolution and intellectual safe harbour for risk optimisation but presents very limited forms of relative insights (Mascitelli, 2000). In turbulent organisational environments, competitive advantage is anchored in the company's ability to innovate, its way temporarily out of relentless market pressures (Ghoshal *et al.*, 1999). The concepts of creativity and innovation are often used interchangeably in the literature. However, some researchers may differentiate between the two concepts. Such researchers usually consider creativity as an internal and intellectual process of bringing about new ideas while innovation refers to the practical application of such ideas (Koontz *et al.*, 1980). Some definitions of creativity focus on the nature of thought processes and intellectual activity used to generate new insights to problems. Other definitions focus on the personal characteristics and intellectual abilities of individuals and still others focus on the product with regard to the different qualities and outcomes of creative attempts (Arad *et al.*, 1997; Udwadia, 1990). In fact, the term creativity used in a

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workplace context has many definitions and interpretations. Researchers, instructors and consultants often explain it by referring to one or more of a variety of factors including attributes, conceptual skills, behaviors, abilities, technologies, empowerment, the process of experience or external influences. This lack of consensus is really not surprising; perhaps, attempts to reach consensus are at odds with the very notion of creativity. However if organizations want to encourage creativity they must explore the range of identifying factors. This will permit managers to focus on the manifestations of creativity they believe are appropriate to their specific problems or situations (Gundry *et al.*, 1994).

Kao suggests that creativity may be defined as a human process leading to a result which is novel (new), useful (solves and existing problem or satisfies an existing need) and understandable (can be reproduced). Although, there have been several studies concerning the issue of creativity and innovation, few authors have attempted to build an integrated framework of the determinants of creativity and innovation. In this research, theoretical perspectives and research from disparate areas are integrated in order to develop a framework that specifies the factors contributing to creativity and innovation. These factors are classified into individual and organizational factors. Individual factors include self-confidence, accepting ambiguities (skepticism), patience, holistic attitude, curiosity (Jannat Poor, 2000). Organizational factors encompass leadership style (Jannat Poor, 2000; Elahi, 2000; Davood Abide Frahani, 1994; Amabile *et al.*, 1994; Amabile, 1988), organizations culture (Bayat, 1996; Lioyd, 1996; Eisenberger and Selbet, 1994), organizational structure (McAdam and McClelland, 2002; Cook, 1998; White, 1994), reward system (Farhang, 1998; Amabile *et al.*, 1986), education (Vernon, 1989; McFadzean, 1998), necessary facilities (Wyckoff and Snead, 1994) and competitive environment (Nabi, 1979; Matin, 1994).

MATERIALS AND METHODS

The method of this study (carried out in the spring of 2005) is cross-sectional. The research society consisted of all managers of different departments of the Iran University Medical Science (totally 22 persons). Data collection was done through questionnaire. This questionnaire which was compiled after several studies and identification of the most important factors influencing the creativity and innovation of the managers consisted of three sections: 1st section of the questionnaire contains the personal information of the answerer. The 2nd section is devoted to the identification of the most important factors influencing the manager's creativity (About 17 questions). The 3rd section focus on determining the most important factors influencing the manager's innovation.

After making the questionnaire using library studies, internet and then checking it against technical texts and consulting university instructors and collecting their views and those of experts, the researchers checked it by internal feedback. Being evaluated through test-retest method by ten universities senior managers, the questionnaires were distributed among all senior managers and then were collected and analyzed by the Statistical software SPSS.

RESULTS AND DISCUSSION

About 45% of the people under study were male. Around 40% of the respondents fell within the range of 40-50. The majority, 90.9% were formal employees and most of the respondents were married with the percentage of 85.7 and about 45.5% were B.S. All those with the job experience between 10-20 years formed 45.5% of this sample.

Among the individual factors influencing creativity (from the point of view of the people under study), manager's knowledge, education and expertise were given the highest points. Factors of morality and nature were allocated the lowest points. On whole, the average point given to individual factors influencing the creativity was 58.6% (Table 1). Among the organizational factors influencing creativity (in view of the people under study), the leadership style had the highest point and organizational structure had the lowest point. On whole, the average point given to organizational factors influencing creativity was 68. 2% (Table 2).

Among the individual factors influencing the innovation (from the point of view of the people under study), knowledge and expertise of the manager had the highest point and manager's morality and nature received the lowest point. On whole, the average point given to individual factors influencing the innovation was 89.4% (Table 3). Amongst the organizational factors influencing innovation (from the point of view of the people under study) leadership style were given the highest point and organizational structure was giving the lowest point. On whole, the average point given to organizational factors influencing innovation was 76.4% (Table 4).

The analysis of the findings shows that between two individual and organizational factors influencing managers' creativity organizational factors by gaining a score of 68.2 in comparison with individual factors which attained a lower score of 58.6 are the most important

Table 1: The average point of individual factors influencing the creativity in the view of people under study

The individual factors influencing the creativity	Dimensions	Mean±SD
Knowledge and expertise	Adequate understanding of the subject	86.4±0.47
Intellectual abilities	Curiosity	72.7±0.57
Motivation	Motivation for being distinguished from others	72.7±0.25
Morality and nature	Being open to criticism	51.9±0.78
	Avoidance of doing daily routines	4.4±1.00
	Tolerating skepticism (ambiguity)	27.3±0.89

Table 2: the average point of organizational factors influencing the creativity from the point of view of people under study

Organizational factors influencing the creativity	Dimensions	Mean±SD
Style and manner of leadership	The possibility for creative individuals expressing ideas	86.4±0.32
Facilities	Availability of necessary facilities for thinking	81.8±0.24
Educational system	Holding workshop and educational session	68.2±0.58
Rewarding system	The rewards being motivating	63.6±0.79
	Promotion of managers according to their creativity	72.7±0.68
Organizational culture	Acceptance of unusual ideas	40.9±0.92
	Participating creative people in higher decision making level	90.9±0.00
Organizational structure	Flexibility of university	77.3±0.66
	Un centralized	31.8±0.88

Table 3: The average point of individual factors influencing the innovation in view of the people under the study

The individual factors influencing the innovation	Dimensions	Mean±SD
Knowledge and expertise	Having enough knowledge and information	95.5±0.22
Motivational factors	Having motivation to perform the new methods of doing job	95.5±0.44
Morality of nature	Patience	77.3±0.56

Table 4: The average point of organizational factors influencing the innovation in view of the people under the study

Organizational factors influencing the innovation	Dimensions	Mean±SD
Style and manner of leadership	Superior management not being dictatorial	90.9±0.22
	Support of superior in new ideas	95.5±0.45
	Tolerating the risk of failure on side of superior	63.5±0.68
Organizational culture	Tolerating and accepting new ideas	86.4±0.52
	Responsibility and social obligation in work place	90.9±0.30
	Pay attention to the client needs	90.9±0.48
	Accepting the organizational changes	86.4±0.63
	Admission of innovative managers	86.4±0.61
Educational system	Suitable educational approaches for making the ideas applicable	77.3±0.45
Facilities	Research and development in university	68.2±0.68
	Availability of enough budget to carry out the research projects	77.3±0.57
Rewarding system	Flexibility of the system of rewarding and salary system	72.7±0.38
Organizational structure	Existence of wide extra organizational communication	54.5±0.69
	Extra organizational communication	63.6±0.78

factors on managers' creativity from the point of the people under study. These results have also been achieved by other studies (Lioyd, 1996; Amabile *et al.*, 1986). The researches carried out show that people with the most significant factor are rare and these abilities and capabilities are distributed evenly throughout people. Therefore, having managers with natural capabilities and innovations is nothing to worry about. What is important is that an environment for influencing and training these abilities and capabilities should be available for the university managers.

The environment which the university managers are active in affects their innovations and creativity can only be achieved and continued in a proper and suitable organizational environment. Creating such an environment is resultant of some factors which according to the organization these factors may differ. Of the individual factors influencing the creativity, factors of

knowledge and expertise were the most important individual influencing factors. These results have also been achieved in other studies (Sajadi, 2004). The researches carried out before show that motivation is an important individual factor but in recent study factors related to education, knowledge and expertise are considered as a priority (White, 1994; Vernon, 1989). In response to the result, it can be said that although for presenting new notions, motivation is important from the point of people under study, motivation is a related factor. If managers does not have adequate knowledge and recognition towards facts, principles and ideas related to the boundaries of activities the motivation will be created. If motivation is present but other conditions are not there, the motivation will also fade away. Amongst the set of factors, organizational factors influencing creativity, the leadership style by gaining a score of 86/4 is the most important factor for the managers.

Other influential factors on creativity in this study are the factors, relating to educational systems in university. Factors relating to rewarding system were identified as the forth set of factors influencing the creativity of managers. By comparison the results of table and relevant questions to prioritizing organizational factors, leadership style are the most important factor influencing the managers' creativity.

Tierney *et al.* (1999) are amongst researchers which have come to this result in their studies that being creative and being supported by such creative people which are the factors related to leadership style and method, positively influence creative people. In Wong and Pang (2003)'s studies support and motivation from the top which is also related to the method and style of leadership is known as the 2nd essential motivation in creativity. Wong believes that without support and motivation from the top, undertaking any policies lead to failure. In management and leadership style (people are supported), the freedom of expressing their ideas and opinions is given and by this way people get motivated to give more solutions. Deci and Ryan (1985) expresses his approval and says, whenever supervisors announce their support from their employees and show interest toward feelings and needs. In this way, employees feel free to express themselves and hopefully improve their creativity skills. Obtained information was analyzed to determine the most important factors influenced managers' innovation. The results showed that from the two categories of individual and organizational factors, individual factors gained a score of 89/43 compared to organizational one which attained a lower score of 76/39. Therefore from the researchers' point of view, individual factors were known to be the most important issues which affect managers' innovation (Table 2 and 4). To support this conclusion, the researches done on subjects, along with some interviews indicate that presenting new ideas in a university depends on a proper organizational environment more than ones individual abilities. In other words, managers can develop new ideas in a suitable environment but when it comes to applying these ideas, individual factors are more essential. At this point, experienced and dominant managers with a good level of awareness can defend their new ideas and convince others to accept them. Managers should also be patient, be able to bear any failure which occurs and have enough motivation to carry out their plans. Managers with these qualities will be able to implement their new ideas in the university and overcome organizational difficulties.

The results relating to the most significant individual factors influencing the innovation of managers suggest that of all influencing factors, the factor of knowledge and expertise is the most important one. This result has been acquired in other studies (Davood Abide Frahani, 1994; Sajadi, 2004). Of the organizational factors influencing innovation; the factors of style and manner of management are given the highest point and the factors relating to organizational structure the lowest point.

CONCLUSION

With respect to individual factors showing more influence on innovation, we can say that for increasing innovation in a university environment, the presence of innovative managers is necessary. If managers want to be creative, first they should increase their knowledge and expertise. A creative and innovative organization is needed for creative and innovative managers to provide a good situation for their employees.

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