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Creativity and Innovation in Workplace (A Case Study: High Schools of Gorgan City)

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ABSTRACT

Innovation and creativity among high school teachers of Gorgan City were evaluated considering various indices, namely university degree (high school diploma, bachelor degree, master degree) and job history (1-4 years, 5-9 years, and >10 years). Two standard questionnaires were adopted for collecting data (Randsyp's standard questionnaire for creativity (1979) and Martin Patchen's Questionnaire to evaluate motivation for job innovation). The findings acquired from the present study showed that there was no significant difference between male and female teachers in job history ($p>0.05$). A significant difference was detected in innovation between male and female teachers with high school diploma ($p<0.05$) while the difference was insignificant in higher degrees ($p>0.05$). The mean scores of innovation for both men and women increased with higher university degrees.

KEYWORDS: innovation, creativity, workplace, highschool, Gorgan City.

1- INTRODUCTION

Successful enterprises create competitive advantage in their marketplace through innovation and creativity. Such enterprises are not innovative and creative by chance; instead, they effectively manage their human resources in order to present new products and services and marketing for them. Individuals are the most crucial resource for an innovative organization. Successful firms which are based upon innovation have learnt how to manage, motivate, and reward individuals [3].Human resources management strategies creating innovation and creativity can be shown in four aspects as follows:

(a) Human resources programming which determines individual requirements in order to make effective teams of creation;
(b) Efficiency determination which determines individual and group efficiency and performance so that there is a relationship between individual innovation and firm's profitability;
(c) Rewarding systems which make use of rewards for motivating personnel so as to achieve organization's goals for profitability, innovation, and high performance;
(d) Profession management which accommodates occupational objectives of an employee in a long term through education [3].

Creativity is a way of thinking which provides new ideas [8]. Innovation is obtaining creative idea and conversion into new product or service. Practical innovation, in fact, is the process of making new thoughts practical. In other words, information is obtained via creativity and the information is presented in different ways via innovation [9].

As an important issue for people, organizations, and all societies, innovation is very important due to its relationship with flexibility and production. Ranko (2004) Krogagliardi (2003) believe that the most important factors for growth and development of human in all cases are innovation and creativity. Innovation is an important issue for existence of organizations in the present highly-competitive environment [6].

Cook (1998) considered creativity as an element of competitive advantage for organizations. The most profitable new products will be those that meet the customer needs more effectively than the competitor's products, and are therefore preferred by more customers. Innovation and creativity benefit companies beyond direct sales growth or efficiency improvements. A company that establishes an effective creativity and innovation process is also likely to realize social benefits that arise from team working and employee motivation. Majaro (1988) looks at innovation as a process where ideas are generated and transformed for implementation to business products and services. Creativity isseen as the front end of the innovation process. Innovation typically occurs through four stages,viz. idea generation, screening, feasibility and implementation. Amabile (1983, 1997, and 1998) defines creativity as the process involved in developing an idea for a new product. Gurteen (1998)defines creativity as generation of ideas whereas innovation is putting these ideas in to actions by sifting, refining and implementing. Hence he believed that creativity required divergent thinking

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process, while innovation a convergent thinking one. Although the fundamental research on creativity dates back to 1960, by the 90s scholars had started appreciating its value in competitive advantage [4].

Creativity and innovation may have positive consequences among teachers. Martin (2009) studied structural relations of organizational culture and creativity and innovation in teachers of Tokyo. Organizational culture is related to creativity and innovation. Creativity is positively related to innovation. Therefore, the present paper aimed at determination of innovation and creativity in high school teachers of Gorgan city.

2- METHODOLOGY

A descriptive-correlational procedure was taken into account in order to perform. Data was collectedvia2 tools, namely Randsyp's Standard Questionnaire for Creativity (1979) and Occupational Innovation Questionnaire (Martin Patchen, 1965) invented by Martin Patchen (1965). Descriptive surveys are adopted so as to obtain information about characteristics in the field of study through acquiring a picture of situations as they happen. Correlation studies examine relationships among variables. Therefore, a descriptive-correlational design was selected in order to examine the relationships between innovation and creativity among male and female high school teachers of Gorgan City.

Randsyp's Standard Questionnaire for Creativity (1979) has been designated so as to examine one's creativity rate by means of 50 questions [5]. The questionnaire's scoring is performed through Likert scale which includes 5 spectra (i.e. completely agree, agree, neutral, disagree, and completely disagree) [7]. Alavi et al. (2003), Goli (2006), Siadat et al. (2007), and Ameri et al. (2002) stated that Reliability of the tool is 0.86, 0.98, 0.74, and 0.83, respectively [7]. Tabrizi (2005) and Siadat (2007) claimed that Cronbach alpha for this questionnaire is 0.82 [6]. In the present paper, reliability of this tool through Cronbach alpha was estimated to be 0.68. The subjects were asked to select the choices they certainly believe in and not to choose based upon the possible choice of a creative person. Scoring was performed through scoring table and then, total score for each respondent was calculated. If the calculated score ranged between 80 and 100, the person was considered "very creative"; if it ranged between 60 and 79, the person was regarded "creative"; if it ranged between 40 and 59, the person was considered "fairly creative; if the score ranged between 20 and 39, the person was regarded "not very creative"; finally, if it ranged between 19 and -100, the person was regarded "non-creative".

The second tool evaluates one's ability to make use of innovation in his/her job through 6questions with 3-6 choices [2]. Reliability was vindicated by Behnamby using Cronbach alpha (0.82). Additionally, reliability was accepted by other authors, as well. Also, validity of this tool was confirmed by Dalghandi in 2000.

Many tests have been prepared in order to measure creative abilities. In spite of the fact that they all influence some cases, they cannot cover complex behavior networks and notably manners, approach, motivation, value, benefits, and other qualities needed for creative thinking. The acquired data were subjected to statistical analysis via SPSS Software (Ver. 16).

3- RESULTS

Table 1 shows the obtained scores of innovation by male and female high school teachers in Gorgan in terms of university degree. As it can be seen, the mean scores in both genders increased with higher university degrees so that the mean scores gained by the male teachers bearing high school diploma, bachelor degree, and master degree are 20.13, 20.53, and 21.46, respectively and for females are 15.14, 19.09, and 23.35, respectively.

Table 1:Innovationamonghigh school teachers in Gorganwith regard to university degree

Gender	University degree	Number	Minimum	Maximum	Mean	Standard deviation
Male	High school diploma	8	16.00	24.00	20.13	3.48
	Bachelor degree	32	16.00	27.00	20.53	3.12
	Master degree	12	18.00	26.00	21.46	2.71
Female	High school diploma	6	13.00	17.00	15.14	1.72
	Bachelor degree	27	10.00	25.00	19.09	4.84
	Master degree	14	19.00	25.00	23.35	3.32

Table 2 shows the information regarding the gained scores of innovation by male and female high school teachers of Gorgan in terms of job history. As it is evident from the table, the male teacher working for 5-9 years gained better scores followed by the ones with 1-4 years job history. However, the female teachers working for 1-4 years gained better scores. Like males, female teachers working for >10 years gained the lowest mean score.

Table 2: Innovation among high school teachers in Gorgan with regard to job history

Gender	Job history	Number	Minimum	Maximum	Mean	Standard deviation
Male	1-4 years	7	17.00	25.00	21.34	3.14
	5-9 years	14	19.00	26.00	22.53	2.62
	>10 years	31	16.00	27.00	20.73	2.87
Female	1-4 years	12	19.00	26.00	23.41	3.11
	5-9 years	17	16.00	25.00	22.59	4.48
	>10 years	18	10.00	25.00	17.52	4.37

Table 3 compares the mean scores of innovation gained by male and female high school teachers of Gorgan in terms of university degree and job history. As it can be seen, a significant difference is detected between innovation scores of male and female teachers bearing high school diploma ($p<0.05$) while other groups did not experience significant differences ($p>0.05$).

Table 3: Contrasting innovation between high school teachers in Gorgan with regard to university degree and job history

Variables	High school diploma	Bachelor degree	Master degree	1-4 years	5-9 years	>10 years
p-value	P=0.03	P=0.25	0.36	0.34	0.95	0.08

Table 4 shows the information regarding the gained scores of creativity by male and female high school teachers of Gorgan in terms of job history. As it is evident from the table, unlike the scores of innovation, creativity scores decreased with higher university degrees for male teachers so that the male teachers bearing high school diploma, bachelor degree, and master degree gained the mean scores of 4.49, -1.39, and -2.73, respectively. However, the best mean score in female teachers was for the ones bearing master degree followed by the ones bearing high school diploma.

Table 4: Creativity among high school teachers in Gorgan with regard to university degree

Gender	University degree	Number	Minimum	Maximum	Mean	Standard deviation
Male	High school diploma	8	-10.00	24.00	4.49	12.49
	Bachelor degree	32	-9.00	24.00	-1.39	9.34
	Master degree	12	-20.00	25.00	-2.73	14.27
Female	High school diploma	6	-9.00	12.00	0.79	7.31
	Bachelor degree	27	-17.00	2.00	-3.83	5.67
	Master degree	14	-9.00	24.00	3.61	12.46

Table 5 shows the information regarding the gained scores of creativity by male and female high school teachers of Gorgan in terms of job history. As it is evident from the table, the male teachers working for 5-9 years gained better score followed by the ones working for 1-4 years. However, the female teachers working for 1-4 years gained better score while the ones working for 5-9 years gained the least mean score.

Table 5: Creativity among high school teachers in Gorgan with regard to job history

Gender	Job history	Number	Minimum	Maximum	Mean	Standard deviation
Male	1-4 years	7	-12.00	21.00	0.17	11.68
	5-9 years	14	-7.00	23.00	5.22	10.86
	>10 years	31	-12.00	24.00	-3.23	9.16
Female	1-4 years	12	1.00	17.00	6.69	7.16
	5-9 years	17	-17.00	-7.00	-10.47	4.43
	>10 years	18	-9.00	2.00	-2.35	4.12

Table 6 compares the mean scores of creativity gained by male and female high school teachers of Gorgan in terms of university degree and job history. As it can be seen, a significant difference is detected between male and female teachers working for 5-9 years in terms of creativity ($p<0.05$) while no significant difference is seen in other groups ($p>0.05$).

Table 6: Contrasting creativity between high school teachers in Gorgan with regard to university degree and job history

Variables	High school diploma	Bachelor degree	Master degree	1-4 years	5-9 years	>10 years
p-value	P=0.49	P=0.38	P=0.41	P=0.36	P=0.03	P=0.81

4- DISCUSSION

The present work was formulated in order to determine "innovation" and "creativity" in high school teachers of Gorgan City by considering university degree (high school diploma, bachelor degree, master degree) and job history (1-4 years, 5-9 years, and >10 years). In order to collect data, two tools with confirmed reliability and validity (Randsyp's standard questionnaire for creativity (1979) and Martin Patchen's Questionnaire to evaluate motivation for job innovation) were used. In both genders, the mean scores of innovation increased with higher university degree where the mean scores for male teachers were 20.13, 20.53, and 21.46 for high school diploma, bachelor degree, and master degree, respectively while they are 15.14, 19.09, and 23.35 for female teachers, respectively. This can be because of higher knowledge of the teachers with higher university degrees. In addition, it was found that a significant difference in innovation exists between male and female teachers only in those with high school diploma ($p<0.05$) while the difference was not significant in the teachers who had higher university degrees ($p>0.05$). Presumably, equal opportunities are prepared for both genders so as to prove individual and professional abilities in higher university degrees. The male teachers who had been working for 5-9 years had better mean score followed by those working for 1-4 years. On the contrary, the females working for 1-4 years gained better mean score and like males, the female teachers working for >10 years gained the lowest mean score. This may be owing to the fact that teacher do not spend too much time for innovative activities in higher ages which may be because of job burnout. Additionally, there was not any significant difference between male and female teachers with regard to job history ($p>0.05$). The mean score gained by male teachers decreased with higher university degrees so that the teachers bearing high school diploma, bachelor degree, and master degree gained 4.49, -1.39, and -2.73, respectively. Nevertheless, the best mean score in females was achieved by those with master degree and then, the ones with high school diploma. A significant difference was seen with regard to creativity between male and female teachers working for 5-9 years ($p<0.05$); however, other groups had no significant difference ($p>0.05$). It was also found that gender influences creativity in an as-yet-unidentified manner because gender forms one's self-concept according to external opportunities. In general, it is recommended to compile stimulating innovative program for male and female teachers, especially for the ones working for longer periods. Also, special programs should be formulated in order to increase creativity in male and female teachers. In designing a workplace which may stimulate employee for having innovation, management must pay attention to same elements that are important for creativity in individuals which are knowledge and creative motivation. In the workplace it is easier to influence intrinsic motivation than to influence knowledge or creative thinking styles which are longer term pursuits [1].

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