

Determination of Innovation and Creativity in Male and Female Teachers of Primary Schools of Gorgan

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ABSTRACT

The present was formulated to determine innovation and creativity in male and female primary school teachers of Gorgan City in terms of university degree (high school diploma, bachelor degree, master degree) and job history (1-4 years, 5-9 years, and >10 years). Data collection was performed through two standard questionnaires. The results showed that no significant difference was seen between male and female teachers in terms of job history ($p>0.05$). There is a significant difference in innovation between male and female teachers bearing high school diploma ($p<0.05$) while the difference was insignificant with higher degrees ($p>0.05$). In both genders, the mean scores of innovation increased with higher university degrees.

KEYWORDS: innovation, creativity, primary school, Gorgan

1- INTRODUCTION

Creativity is a way of thinking which provides new ideas [5]. 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 [6].

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 [3].

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 primary school teachers of Gorgan city.

2- METHODOLOGY

The present work is descriptive correlational study. Data collection was performed via occupational innovation questionnaire (MarticPatchen, 1965) which was invented by Martin Patchen in 1965. The questionnaire determines one's ability to adopt innovation in his/her job through 6closed questions each with 3-6 choices [1]. Reliability of this tool was approved by Behnam through Cronbach alpha to be 0.82. Furthermore, reliability of this tool was accredited by other authors, too. In addition, validity of this tool was confirmed by Dalghandi in 2000.

Several tests have been designed for measuring creative capabilities and behaviors. Although they are all effective in some cases, they are unable to cover complex behavior networks and especially such qualities as behavior, attitude, stimulation, value, advantages, and other qualities preparing one for creative thinking.

Randsip standard questionnaire for creativity (1979) was presented in order to measure one's creativity with 50 questions [2]. The questionnaire's scoring system in based on Likert scale and it includes 5 spectra (i.e. absolutely agree, agree, neutral, disagree, absolutely disagree) [6]. Reliability of this tool was reported to be 0.86, 0.98, 0.74, and 0.83 by Alavi et al. (2003), Goli (2006), Siadat et al. (2007), and Ameri et al. (2002) [4]. Tabrizi (2005) and Siadat (2007) reported Cronbach alpha of this tool to be 0.82 [4]. In the present paper, reliability of this tool through Cronbach alpha was estimated to be 0.68. Respondents were asked to choose the options they really believe in and not to choose based on the possible choice of a creative person. Scoring was performed according to scoring table and then, total score for each respondent was calculated. When 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

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between 19 and -100, the person was regarded “non-creative”. The obtained data were analyzed by use of SPSS Software version 16.

3- RESULTS

Table 1 shows the obtained scores of innovation by male and female primary 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 20.33, 20.85, and 21.66, respectively and for females are 15.34, 19.21, and 23.50, respectively.

Table 1: descriptive information of gained scores of innovation by male and female primary school teachers in Gorgan in terms of university degree

Gender	University degree	Number	Minimum	Maximum	Mean	Standard deviation
Male	High school diploma	21	16.00	24.00	20.33	3.38
	Bachelor degree	65	16.00	27.00	20.85	3.10
	Master degree	29	18.00	26.00	21.66	2.73
Female	High school diploma	18	13.00	17.00	15.34	1.82
	Bachelor degree	53	10.00	25.00	19.21	4.74
	Master degree	22	19.00	25.00	23.50	3.12

Table 2 shows the information regarding the gained scores of innovation by male and female primary 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: descriptive information of gained scores of innovation by male and female primary school teachers in Gorgan in terms of job history

Gender	Job history	Number	Minimum	Maximum	Mean	Standard deviation
Male	1-4 years	35	17.00	25.00	21.06	3.16
	5-9 years	58	19.00	26.00	22.60	2.60
	>10 years	22	16.00	27.00	20.80	2.93
Female	1-4 years	32	19.00	26.00	23.35	3.09
	5-9 years	41	16.00	25.00	22.65	4.50
	>10 years	20	10.00	25.00	17.54	4.35

Table 3 compares the mean scores of innovation gained by male and female primary 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: comparison of the scores of innovation gained by male and female primary school teacher in Gorgan in terms of university degree and job history

Variables	High school diploma	Bachelor degree	Master degree	1-4 years	5-9 years	>10 years
p-value	P=0.02	P=0.24	0.35	0.32	0.95	0.07

Table 4 shows the information regarding the gained scores of creativity by male and female primary 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 4.57, -1.42, and -2.71, 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: descriptive information of gained scores of creativity by male and female primary school teachers in Gorgan in terms of university degree

Gender	University degree	Number	Minimum	Maximum	Mean	Standard deviation
Male	High school diploma	21	-10.00	24.00	4.57	12.51
	Bachelor degree	65	-9.00	24.00	-1.42	9.38
	Master degree	29	-20.00	25.00	-2.71	14.25
Female	High school diploma	18	-9.00	12.00	0.85	7.26
	Bachelor degree	53	-17.00	2.00	-3.78	5.64
	Master degree	22	-9.00	24.00	3.57	12.44

Table 5 shows the information regarding the gained scores of creativity by male and female primary 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: descriptive information of gained scores of creativity by male and female primary school teachers in Gorgan in terms of job history

Gender	Job history	Number	Minimum	Maximum	Mean	Standard deviation
Male	1-4 years	35	-12.00	21.00	0.16	11.75
	5-9 years	58	-7.00	23.00	5.16	10.98
	>10 years	22	-12.00	24.00	-3.13	9.10
Female	1-4 years	32	1.00	17.00	6.75	7.13
	5-9 years	41	-17.00	-7.00	-10.50	4.50
	>10 years	20	-9.00	2.00	-2.33	4.09

Table 6 compares the mean scores of creativity gained by male and female primary 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: comparison of the scores of creativity gained by male and female primary school teacher in Gorgan in terms of university degree and job history

Variables	High school diploma	Bachelor degree	Master degree	1-4 years	5-9 years	>10 years
p-value	P=0.51	P=0.42	P=0.39	P=0.35	P=0.02	P=0.78

4- DISCUSSION AND CONCLUSION

The present paper aimed at determination of “innovation” and “creativity” in male and female primary school teachers of Gorgan City in terms of university degree (high school diploma, bachelor degree, master degree) and job history (1-4 years, 5-9 years, and >10 years). To collect data, two questionnaires whose reliability and validity had been confirmed were adopted. In both gender, the mean scores of innovation increased with higher university degree where the mean scores for male teachers were 20.33, 20.85, and 21.66 for high school diploma, bachelor degree, and master degree, respectively while they are 15.34, 19.21, and 23.50 for female teachers, respectively. This may be attributed to higher knowledge and information of teachers bearing higher university degrees. Furthermore, comparison between male and female teachers showed that there is a significant difference in innovation between male and female teachers only in the ones bearing high school diploma ($p < 0.05$) while the difference was insignificant with higher degrees ($p > 0.05$). It seems that equal opportunities are provided for both genders in order to present capabilities in higher university degrees. The male teachers working for 5-9 years gained better mean score followed by the ones working for 1-4 years. However, 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 due to the fact that teacher devote lower attempts for innovative activities as they get older which may be a result of job burnout and more engagements in higher ages. Moreover, no significant difference was seen between male and female teachers in terms of job history ($p > 0.05$). The mean score gained by male teachers reduced with higher university degrees so that the teachers bearing high school diploma, bachelor degree, and master degree gained 4.57, -1.42, and -2.71, respectively. However, the best mean score in females was gained by the ones bearing master degree followed by the ones bearing high school diploma. A significant difference was detected in terms of creativity between male and female teachers working for 5-9 years ($p < 0.05$) while other groups witnessed no significant difference

($p > 0.05$). It was found that gender affects 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. Furthermore, special programs should be formulated in order to increase creativity in male and female teachers.

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