PATTERNS OF CREATIVITY TRENDS AMONG HEALTH MANAGERS IN HEALTH SECTOR OF SAUDI ARABIA, RIYADH REGION

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Abstract

Introduction: creativity is concerned with coping of daily challenges and can be performed by managers and employees to achieve the goals of organization.

Study objectives: To Identify the level of creativity among health managers in health sector of Saudi Arabia, to examine the relationship between gender, educational level, specialty and age, with the level of creativity among health managers in health sector of Saudi Arabia and to identify the differences in level of creativity among health managers of Saudi Arabia between male and female, with different specialties and with different educational levels.

Methodology:

Study design and setting: Cross-sectional study design. The present study was conducted at the different departments at King Saud medical City, Prince Salman Hospital, Al- Gawieiah Hospital, Al-Amal Hospital, Al-yamama Hospital, Al-Dawadmi Hospital and Saudi ministry of health. A convenient sample of 175 participants was included in the study. A previously validated questionnaire was used to gather data from participants.

Results: The data showed that age, sex and income were not correlated significantly with all domains of creativity. Educational level was correlated significantly with work environment and creativity potential.

Conclusion: Demographical variables did not show a significant correlation with all domains of creativity (p value >0.05) except educational level which was significantly correlated with work environment (p value 0.004) and creativity potential (p value 0.000).

Keywords: Creativity, health managers, creativity domains

Introduction

It has been realized that after world appeared and social life developed, individual has started to create his inventions which were resulted from mind appeared according to the needs. These days' changes happen broadly and profoundly and influence the majority of us. Nowadays, creativity is identified as key of success and survival. So the evolutions in technology, science and management formulate worldwide successful organization to act depending on creativity (Shahraray, 1997). Furthermore, Hashame (2004) expressed his opinion that creativity will be the pin of worldwide movement in 21st.

According to Maten (1995), creativity is perceived to be an important issue in unbalanced situation and the absence of creativity would lead to destruction of an organization in long time. Hashame (2004) viewed creativity as the ability of new and different looks at a subject or process of breaking and rebuilding knowledge about a subject and getting new knowledge.

Several studies have investigated factors affecting creativity and pointed to motivating factor, organizational culture, social communication, managerial role and performance, knowledge management, job nature and intelligence (Amabile, 1985; Zhou and George, 2003; Razaveye, 2006; Wong and Ladkin, 2008). From an organizational vision, creativity has been perceived as novel idea and plan to improve quality and quantity of organizational performance such as development in productivity and services, expenses reduction and creating new and superior services (Farahmand, 2003). In another study by Amabile (1998), creativity is regarded as process of emergent innovative ideas. Creativity is also viewed as mental process resulting in new and ideal ideas and productions (Louiz, 2006), while Hossaine (2000) expressed his opinion in which he thinks that creative one usually accepts novel idea and belief whereas general people reject them. Khesre (2004) highlighted a very important idea in which open organizational environment and accepting changes are appropriate requirements for creativity. These views have been argued within the context of organizational culture that prepares proper atmosphere for rising or destroying it.

Rangiaho (2007) showed that managers have main role in structural variable to release creativity. Furthermore, it is the duty of managers, in trustful environment, to encourage individuals to present creative idea and to prepare this environment. This idea has been overemphasized by the study of Rosa et al (2008), in which he put stress on the role of managers because if they work elegantly and pay attention to creativity essentially, employees will follow them.

Rosa et al (2008) pointed to four main managerial principles that affect creativity in organization: to manage organizations about knowledge to be more diverse than expected to be encountered naturally. To promote employees hold a collaborative attitude towards work and the organization. To make it accessible for organization employees to engage in the quick testing of ideas and solutions as they emerge, and to compensate employee and supervisor for behaviors that support these principles and punish resistance to their implementation. These principles work in companies even if creativity and innovation are not stated organizational objectives, and do not require large funds or disruptions to work processes to give up valuable results.

Motivational factors especially intrinsic motivation that is affected deeply by social environment, have main role in growing creativity. Intrinsic motivation is conducive to creativity and extrinsic motivation is harmful. Intrinsic job-related motivation which include opportunity for advancement and development, loyalty to employees, appreciation and praise of work done, feelings of being involved, sympathetic help with personal problems and interesting work, are found to encourage employees' risk-taking behavior (Amabile, 1985).

According to Fiaz (2009), proficiency is one of creativity criteria. Nobody can't do something creatively if not learn needful and relative knowledge.

Generally, new and complicate world needs human and organizational power focus on achieving foreseen goals. Have creative and intelligent individual whose abilities and talent have been wasted and the most important reason is disability to distinguish magnitude of creativity and existence of unsuitable environment. Therefore, if creativity can assist health managers in health sector, it would be important to look into the predictive factors that foster creativity in health managers in health sector of Saudi Arabia.

Objective of the Study

The main purpose of this study was to identify the patterns of creativity among health managers in health sector of Saudi Arabia.

Specific Aims

1.Identify the level of creativity among health managers in health sector of Saudi Arabia.

2.Identify the differences in level of creativity among health managers of Saudi Arabia with:

1- Age.
2- Gender.
3- Educational level.
4- Income level.

Methodology

Study design

Cross-sectional descriptive design was used to collect data from participants at the same time.

Study Setting

This study was conducted at the different departments at King Saud medical City, Prince Salman Hospital, Al- Gawieiah Hospital, Al-Amal Hospital, Al-Yamama Hospital, Al-Dawadmi Hospital and Saudi Ministry of health. Recruitment of the participants took place in different departments, in King Saud medical Complex, Prince Salman Hospital, Al- Gawieiah Hospital, Al-Amal Hospital, Al-yamama Hospital, Al-Dawadmi Hospital and Saudi ministry of health. The reason for recruiting mangers from these hospitals was that, demographic characteristics (educational level, gender, personal income, specialty…..etc) might vary. The experiences of mangers might differ also in these hospitals that would broaden the range of experiences with creativity and different resources therefore, the researcher team was able to recruit a sample of maximum variation from these settings. Study hospitals were chosen according to size, while the Ministry of Health was chosen due to its having large number of managers.

Population and Sample

Target population for this study was mangers in the hospitals and in the Ministry of Health in Saudi Arabia. Accessible population of this study was mangers who were working at different hospitals in the Riyadh Region of Saudi Arabia (table 1).

The required sample size was obtained by selecting the managers of largest six hospitals in Riyadh Region and ministry of health. Given a power analysis using a medium effective size and a power estimation of 0.80, for a two-tailed test with alpha set at .05, at least 200 participants were required to have confidence in the findings. Inclusion criteria used in this study were: (a) health managers (executive, managerial, financial and technical) are that they currently work in single managerial position with total accountability and responsibility of not less than 15 employees (b) who have been in that post for at least 2 years -experience, (c) Saudi nationality, (d) different age, gender, specialties, educational level.

Table 1: Population and Sample Distribution of Saudi Health Mangers among, Riyadh, Saudi Arabia 2011.

Settings	Setting population	Collected sample	Response rate
Ministry of Health	72	31	43.05
King Saud Medical City	53	35	66.03
Alamal	36	25	69.44
Al-yamama Hospital	39	23	58.90
Price Salman Hospital	32	22	68.75
Al-Gawieiah Hospital	25	18	72
Al-Dawadmi Hospital	27	21	77
Total	**284**	**175**	**61.61**

Study Tools

This study used the Multifactor Creativity Questionnaire. Written permissions were granted for using the instrument. Standard translation procedure from English to Arabic language was used for translation of both tools.

The Multifactor Creativity Questionnaire

The multifactor creativity questionnaire is a three parts measure. Part one consists of 16- item which measure personality of manger. Part two is a 16- item scale which measure problem solving approach that mangers adopted it. Part three 16- item which measure work environment of organization.

The multifactor creativity questionnaire was developed by John Townsend (1989) [(20)] to measure creativity. This 48-item, self-report instrument is responded to on a 5-point Likert scale ranging from one (always) to five (never) for odd numbered questions (1, 3, 5, 7, 9, etc) .While, for even numbered questions (2, 4, 6, 8, 10 etc) should be scored from one (never) to five (always). Possible scores for this scale can range from a minimum of 48 (indicating a very low level of creativity) to a maximum of 240 (indicating a very high level of creativity).

Scoring System

All Odd questions (1,3, 5, 7,9, etc) should be scored:

Never = 5 points.

Rarely = 4 points.

Sometimes = 3 points.

Often =2 points.

Always =1 point.

All EVEN numbered questions (2, 4,6,8,10 etc) should be scored :

Always = 5 points.

Often = 4 points.

Sometimes = 3 points.

Rarely =2 points.

Never =1 point.

Validity: The construct validity of the multifactor creativity questionnaire was evidenced by a factor analysis that yielded a significant loading of the multifactor creativity questionnaire scale on one of the three original subscales of the Creativity Rating Scale. The three subscales of temporality and future were positive readiness and lastly, interconnectedness. Further, construct validation of the multifactor creativity questionnaire included correlations of the multifactor creativity questionnaire with the Creativity Rating Scale (r = 0.92), the Existential creativity Scale (r = 0.84) and the Nowotny

creativity Scale (r = 0.81). Finally, the multifactor creativity questionnaire was correlated with the Creativitylessness Scale for divergent validity (r = - 0.73) (Townsend and Favier, 1989).

Reliability: Data were analyzed for internal consistency on the first administration and for stability on repeat administration 2 weeks later. The Cronbach's alpha coeffiaent was 0.97 on the multifactor creativity questionnaire, which indicated internal consistency. Test-retest correlation was 0.91, indicative of stability over time. Each of the three factors was examined for the reliability as subscales, alpha coefficients were found to be 0.97.

Pilot Study

A pilot study was completed to determine possible problems with the design and instrument used in this study. A convenience sample of 26 mangers was obtained using the identical selected criteria as planned for the main study. All requirements for informed consent were met in the oral and written explanation to the participants. The collection of data followed the format identified in the main study and was found to be effective.

The instruments (demographic data form, and the Multifactor Creativity Questionnaire) identified for potential use in the main study were evaluated for readability. The demographic data form developed by the researcher was found to need minor revisions in wording of several questions and refinements in overall format so as to increase readability and ease of answering. On other hand, All participants reported that the wording of the instruments and the instructions were clear. The Multifactor Creativity Questionnaire was evaluated for reliability. Internal consistency reliability was determined by Cronbach's Alpha of . 97. The revised demographic data from Multifactor Creativity Questionnaire was retained and employed in the main study. Data collected in the pilot study were evaluated in terms of adequacy of identified statistical tests to effectively investigate the identified research problems.

Data Collection Procedure

IRB approval, was obtained from JUST University as well as from each of the participated hospital. Data were collected during the period of June 2011 through August 2011.

All mangers within the identified setting, who meet the inclusion criteria were asked to participate in the study after the researchers explained the study purpose and procedures, participants agree to participate in the study, fill up self-report containing the cover letter, instrument for measurement of creativity, consent form, demographics data form, a pencil, and an envelope within to place all forms on completion. The demographics data form

included mangers information such as age, gender, personal income, educational level and specialty. Those participants were instructed to return the forms in the sealed envelope to the drop box that was designated in each hospital. Every participant was given instructions about how the researcher could be reached should they have any questions. After collection of the data, the researcher was asked if the participant had any further question or comments about the study.

Data Analysis

The Statistical Package for Social Science (SPSS) SPSS®-PC version 18 for Windows was used to analysis data. For all statistical analysis the level of significant was set at alpha level ≤ 0.05. Data analysis composed of both descriptive and inferential analysis.

Descriptive statistics (means, standard deviations, percentages) were used to describe the socio-demographic characteristics of the sample and as well, the Multifactor Creativity Questionnaire. Chi-square test was used to examine difference in the level of creativity with respect to gender as well other variables.

Study Findings

Demographic Characteristics of Participants

As shown in table 2, age was categorized into three age intervals from ≤ 30, 31- 40 and >40 years. About 34% of participants were ≤ 30 years, about 41% participants in the age group 31-40 years and 25% were >40 years. The majority of participants (about 70%) were males. The majority of participants (76%) had bachelor or diploma degrees, while about 23% of participants had master or higher qualifications. Income under 10000SR was reported by 44% of participants while $\geq$ 10000SR was reported by about 42% of participants (table 2).

Table 2: Demographic characteristics of participants

Variable	Frequency (N)	Percentage (%)
Age		
≤ 30	59	33.7
31-40	70	40.7
>40	43	25
Missing	3	1.7
Sex		
Male	123	70.3
Female	50	28.6
Missing	2	1.1
Educational level		
Bachelor or diploma	133	76
Master or higher	41	23.4
Missing	1	0.6
Income (SR)		
< 10000	77	44
$\geq$10000	74	42.3
Missing	24	13.7

The Perception of Participants for Creativity Variables

Three main domains of creativity were investigated and included personality, problem solving and work environment. About 87% of participants had perceived that personality prevents expressing creativity, while about 9% perceived that personality predisposes to creativeness and 4% perceived that creative potential is stifled by feelings. Problem solving approaches were perceived by 83% participants as problem –solving style to be rigid, about 7% perceived it to lack creativeness, while about 10% perceived it as creative. Work environment is thought to be changed to be creative by about 89% of participants. About 5% perceived that work environment discourage creativeness, while about 6% perceived that work environment is ideal for creativeness (table 3).

Table 3: The perception of participants for creativity variables

Variable	Frequency (N)	Percentage (%)
– Creative potential stifled by feelings	7	4
– Personality prevent expressing creativity	153	87.4
– personality predispose to high creativeness	15	8.6
– Problem –solving style lacks creativeness	12	6.9
– problem-solving style is rigid	146	83.4
– problem-solving style is creative	17	9.7
– Work environment discourage creativeness	9	5.1
– work environment may be changed to be creative	155	88.6
– work environment may is ideal for creativeness	11	6.3

The Relationship between Demographical Variables and Creativity

Age and Creativity Variables

The study data showed similar findings for creative potential stifled by feelings by age. While "personality prevents expressing creativeness" was reported higher proportion by participants ≤30 (91.5%) followed by participants aged 31-40 years (63%) and participants aged >40 years (77%). "Personality predisposes to high creativeness" was reported to be higher by participants aged >40 years (18.6%) than by participants in the age group 31-40 years (7.1%) and participants ≤30 (3.4%). The correlation between age and personality is not statistically significant (p value 0.88). "Problem solving style lacks creativity" was highest in the age group ≤30 (10.2%) followed by participants >40 years (7%) and participants in the age group 31-40 years (4.3%). "Problem solving style is rigid" was shown to be slightly varied among all age groups. "Problem solving style is creative" was shown highest among participants in the age group >40 years (14%) followed by 31-40 years (13%) followed by participants <30 (3.4%). The relationship between "problem solving" and age is not statistically significant (p value 0.230). "Work environment discourages creativeness" was

reported in similar proportions among participants at different age groups. “Work environment may be changed to be creative” was also reported by similar proportions at various age groups. “Work environment is ideal for creativeness” was highest among participants >40 years (12%) followed by participants in the age group 31-40 years (7.1%) and participants <30 (1.7%). The relationship between age and work environment is not statistically significant (p value 0.339). “Creative if given a chance” was shown to be the highest for participants >40 years (5%) followed by participants <30 (3%) and by participants in the age group 31-40 years (1%). “Good creative potential” was similar in the age groups <30 (94.9%) and 31-40 years (94.3%) but it was decreased in the age group >40 (38.4%). Highly creative was best shown among participants >40 (7%), followed by participants in the age group 31-40 years (4.3%) and <30 (1.7%). The relationship between age and creativity potential is not statistically significant (p value 0.579) (table 4).

Table 4: The relationship between age and creativity

Variable	Age			P value
	≤30 (N %)	**31-40 (N %)**	**>40 (N %)**	
– Creative potential stifled by feelings	3 (5.1)	2 (2.9)	2 (4.7)	0.88
– Personality prevents expressing creativeness	54 (91.5)	63 (90)	33 (76.7)	
– personality predisposes to high creativeness	2 (3.4)	5 (7.1)	8 (18.6)	
– Problem solving style lacks creativity	6 (10.2)	3 (4.3)	3 (7)	0.230
– problem solving style rigid	51 (86.4)	58 (82.9)	34 (79.1)	
– problem solving style is creative	2 (3.4)	9 (12.9)	6 (14)	
– Work environment discourages creativeness	4 (6.8)	3 (4.3)	2 (4.7)	0.339
– work environment may be changed to be creative	54 (91.7)	62 (88.6)	36 (83.7)	
– work environment is ideal for creativeness	1 (1.7)	5 (7.1)	5 (11.6)	
– creative if given a chance	2 (3.4)	1 (1.4)	2 (4.7)	0.579
– good creative potential	56 (94.9)	66 (94.3)	38 (38.4)	
– highly creative	1 (1.7)	3 (4.3)	3 (7)	

Sex and Creativity Variables

The study data showed that creative potential stifled by feelings was reported by equal proportions of both males and females (4% for each). Personality prevents expressing creativeness was also reported by close proportions of males (86%) and females (90%) while personality predisposes to high creativeness was more reported by males (9.8%) than females

(6%). The relationship between sex and personality is not statistically significant (p value 0.727).

"Problem solving style lacks creativity" was slightly higher in females (8%) compared to males (6.5%). "Problem solving style is rigid" was higher among females (88%) than males (81.3%). "Problem solving style is creative" was higher in males (12%) than females (4%). No significant variations were observed between problem solving approaches and sex (p value 0.255).

"Work environment discourages creativeness" was reported to be (4%) for males and this was less than reported by females (6%). "Work environment may be changed to be creative" was about 88% for males and this was slightly lower than reported by females (92%). "Work environment is ideal for creativeness" was higher among males (8%) compared to females (2%). The relationship between sex and work environment is not statistically significant (p value 0.292).

The study data showed that more females (4%) are creative if given a chance compared with males (about 2%), more females (96%) have good creative potential compared with males (about 92%), and about 6% of males are highly creative. The relationship between sex and creativity potential is not statistically significant (p value 0.201) (table 5).

Table 5: The relationship between sex and creativity

Variable	**sex**		**P value**
	Males (N %)	**Females (N %)**	
– Creative potential stifled by feelings	5 (4.1)	2 (4)	0.727
– Personality prevents expressing creativeness	106 (86.2)	45 (90)	
– personality predisposes to high creativeness	12 (9.8)	3 (6)	
– Problem solving style lacks creativity	8 (6.5)	4 (8)	0.255
– problem solving style rigid	100 (81.3)	44 (88)	
– problem solving style is creative	15 (12.2)	2 (4)	
– Work environment discourages creativeness	5 (4.1)	3 (6)	0.292
– work environment may be changed to be creative	1o8 (87.8)	46 (92)	
– work environment is ideal for creativeness	10 (8.1)	1 (2)	
– creative if given a chance	3 (2.4)	2 (4)	0.201
– good creative potential	113 (91.9)	48 (96)	
– highly creative	7 (5.7)	0 (0)	

Educational Level and Creativity Variables

"Creative potential stifled by feelings" was reported slightly less by participants with bachelor or diploma (about 4%) than those with master or higher (about 4%). "Personality prevents expressing creativeness" was reported more by participants with bachelor or diploma (about 90%) than those with master or higher (about 81%). About 15% of participants with master or higher reported that personality predisposes to high creativeness and this was higher than that reported by participants with bachelor or diploma (about 7%). The relationship between personality and educational level is not statistically significant (p value 0.268).

About 7% of participants with bachelor or diploma reported that "problem solving style lacks creativity" compared with about 5% of participants with master or higher. About 87% of participants with bachelor or diploma reported that "problem solving style is rigid" and this was higher than those with master or higher (about 76%). About 20% of participants with master or higher reported that "problem solving style is creative: and this was higher than those with bachelor or diploma (about 7%). The relationship between educational level and problem solving is not statistically significant (p value 0.54).

The data of the present study showed that "work environment discourages creativeness" was reported by about 7% of participants with master or higher and this was higher than those with bachelor or diploma (about 5%). "Work environment may be changed to be creative" was more reported by participants with bachelor or diploma (about 92.5%) compared with those with master or higher (about 76%). About 17% of participants with master or higher perceived that "work environment is ideal for creativeness" compared with those with bachelor or diploma (about 3%). The relationship between educational level and work environment is statistically significant (p value 0.004).

The data showed that 3% of participants with bachelor or diploma are "creative if given a chance" compared with about 2% of participants with master or higher. About 96% of participants with bachelor or diploma had good creative potential compared with about 83% of participants with master or higher. Furthermore, about 15% of participants with master or higher were highly creative compared with 0.8% of participants with bachelor or diploma. The relationship between educational level and creativity potential is statistically significant (p value 0.000) (table 6).

Table 6: The relationship between educational level and creativity

Variable	Educational level		P value
	Bachelor or diploma (N %)	Master or higher (N %)	
– Creative potential stifled by feelings	5 (3.8)	2 (4.9)	0.268
– personality prevents expressing creativeness	119 (89.5)	33 (80.5)	
– personality predisposes to high creativeness	9 (6.8)	6 (14.6)	
– Problem solving style lacks creativity	9 (6.8)	2 (4.9)	0.54
– problem solving style rigid	115 (86.5)	31 (75.6)	
– problem solving style is creative	9 (6.8)	8 (19.5)	
– Work environment discourages creativeness	6 (4.5)	3 (7.3)	0.004
– work environment may be changed to be creative	123 (92.5)	31 (75.6)	
– work environment is ideal for creativeness	4 (3)	7 (17.1)	
– creative if given a chance	4 (3)	1(2.4)	0.000
– good creative potential	128 (96.2)	34 (82.9)	
– highly creative	1 (0.8)	6 (14.6)	

Income and Creativity Variables

The study data showed that about 4% of participants with lower income perceived that "creative potential stifled by feelings" and this was higher than those with higher income about 3%. About 92% of participants with lower income perceived that "personality prevents expressing creativeness" compared with about 84% of participants with higher income. About 14% of participants with higher income perceived that personality "predisposes to high creativeness" compared with about 4% of participants with lower income. The relationship between income and personality and income is not statistically significant (p value 0.104).

"Problem solving style lacks creativity" was reported to be higher among those with lower income (about 9%) compared with those with higher income (about 4%). "Problem solving style is rigid" was also more slightly reported by lower income participants (about 86%) compared with higher income participants (about 82%). About 14% of higher income participants perceived "problem solving style is creative" and this was higher than those with lower income participants (about 5%). The relationship between income and problem solving is not statistically significant (p value 0.116).

The data regarding work environment showed that about 7% of lower income participants perceived that "work environment discourages creativeness" and this was higher than those with higher income participants (about 4%). About 92% of lower income participants reported that work "environment may be changed to be creative" and this was

higher than those with higher income (about 87%). About 10% of participants with higher income reported that "work environment is ideal for creativeness" and this was higher than those with lower income participants (about 5%). The relationship between income and work environment is not statistically significant (p value 0.07).

The data showed that similar proportions of participants with various incomes are creative if given a chance; about 97% of participants with lower income had good creative potential compared with about 91% of higher income participants. About 7% of higher income participants are highly creative. The relationship between creativity potential and income is not statistically significant (p value 0.067) (table 7).

Table 7: The relationship between income and creativity

Variable	Income (SR)		P value
	<10000 (N %)	≥10000 (N %)	
– Creative potential stifled by feelings	3 (3.9)	2 (2.7)	0.104
– personality prevents expressing creativeness	71 (92.2)	62 (83.8)	
– personality predisposes to high creativeness	3 (3.9)	10 (13.5)	
– Problem solving style lacks creativity	7 (9.1)	3 (4.1)	0.116
– problem solving style is rigid	66 (85.7)	61 (82.4)	
– problem solving style is creative	4 (5.2)	10 (13.5)	
– Work environment discourages creativeness	5 (6.5)	3 (4.1)	0.07
– work environment may be changed to be creative	71 (92.2)	64 (86.5)	
– work environment is ideal for creativeness	1 (1.3)	7 (9.5)	
– creative if given a chance	2 (2.6)	2 (2.7)	0.067
– good creative potential	75 (97.4)	67 (90.5)	
– highly creative	0 (0)	5 (6.8)	

Discussion

Starting from the importance of creativity as a subject for competing with the daily challenges within work medium, the present study was conducted. Three main objectives were to be achieved and included identifying the level of creativity among health managers in health sector of Saudi Arabia.

As stated earlier, three domains of creativity were studied and included personality, problem solving and work environment. Demographic variables were studied for their correlation with creativity domains.

Age did not correlate significantly with personality domain (p value 0.88). This finding is in line with other studies as the study of Mooghali (2010) who identified factors on creativity reinforcement in Shiraz University of Medical Sciences. Regression analysis

revealed that there was not any significant relationship between creativity with sex, and age. Therefore we cannot predict creativity according to these variables. Consistence with this finding, A study conducted by Louis L (2006) to identify effects of demographic differences on creativity in Virtual Work.

Other studies reported that younger persons have a tendency to be more creative, and this attitude is attributed to being having a relatively longer life span to make use of what they have learned from training, compared to their older counterparts. They are also more likely to be in the stage of searching for a career direction and have invested less time and effort in any mode of thinking or area of specialization. These conditions may prompt them to be more willing to accept training and change. Further, a research has shown that a person's work experiences may push up his/her creative performance (Stein, 1991). Furthermore, lacking such an advantage, younger persons may see greater need in attending creativity to improve their creative competitiveness against the older counterparts (Stein, 1991). Our findings can be explained by taking into account other research considerations in which creativity research has a long history in psychology, focusing on individual differences in personality, cognitive abilities, and problem-solving styles. However, recent theoretical and empirical work looks at creativity as something the brain does naturally. That is, creativity is an adaptive feature of normal cognitive functioning that evolved to aid problem solving under conditions of uncertainty. Under such circumstances, novel approaches and invention are highly advantageous (Smith, 1998).

The data of the present study did not show a significant correlation between creativity variable "problem solving" and age (p value 0.230). Problem solving seems to depend on other factors independent of age and creativity such as policies and regulations which are addressed very well in Kingdom of Saudi Arabia.

The data results did not also show significant correlation between age and each of creativity variables "work environment" and "creativity potential" (p value 0.339 and 0.579 respectively). The findings of our study can be explained depending on other perspectives that assert that all human beings have the potential for creativity because of sharing common neural processes. But other studies pointed to determinants affecting creativity such as the socio-cultural context, personality differences, and specific personal experiences (such as knowledge and skills).Within work settings, it is also apparent that organizational policies and practices as well as managerial behaviors influence creativity among workers (Smith, 1998).

Other researchers stressed on motivational factors especially inner motivation that is affected deeply by social environment, have main role in growing creativity. Intrinsic job-related motivation which include opportunity for advancement and development, loyalty to employees, appreciation and praise of work done, feelings of being involved, sympathetic help with personal problems and interesting work, are found to encourage employees' risk-taking behavior (Amabile, 1985). All these factors were not correlated with age as an independent variable for creativity.

The results of the present study did not show any significant correlation between sex and all creativity factors under study (p value > 0.05 for the all). This is in consistence with works of Kaufman, Baer, and Gentile (2004). Other studies contradict our result , women have surpassed men in creative ability (Amabile, 1985), whereas in other comparisons, men outperform women (Razaveye, 2006; Wong and, Ladkin, 2008) Similarly, in studies of creative men and women's personalities, some researchers have found similarities (Farahmand, 2003; Zhou and George, 2003), while others have found personality differences (Amabile, 1998). Because of having more questions than answers concerning how men and women differ and resemble one another in their creative pursuits, Baer (1999) called for studies designed to explain the many inconsistencies that characterize this body of literature. AiX (1999) has suggested that these pervasive inconsistencies might be explained, at least in part, by differences in gender role identification across participants. The issue of gender role has attracted far less attention than gender itself in empirical creativity studies. However, this small but growing body of research has yielded consistent evidence of superior creative potential among androgynous individuals (Hossaine, 2000).

Other reported findings are also not in line with our findings. It has been shown by Richardson (1986) that females have significant creative performance compared with male counterparts on five creativity tests (Simonton, 1980). It can be asserted again that organizational policies and instructions govern the daily process so that creativity variables were not affected by sex. Furthermore, the involvement of women in management is still recent and a little number of women has already been engaged in health management.

The results showed that educational level did not significantly correlate with personality (p value 0.268) and problem solving (p value 0.540). On the other hand, educational level correlated significantly with work environment (p value 0.004) and creative potential (p value 0.000). Even though, it is surprising not to have positive outcome for education on personality and problem solving among the participants in our study, we can

explain these findings based on lacking knowledge and training on creativity. Other cited studies showed that learning needful and relative knowledge are essential requirements for creativity (Fiaz, 2009).

Educational level has positive impacts on work environment so that participants with higher qualifications perceive work environment more positively than participants with lower qualifications. Our findings agree with other studies in which individual differences as well as situational factors influence creativity of individuals. These differences are related to many factors, including personality, experience, interests, and knowledge. Furthermore, creative individuals have several features that distinguish them from their less creative peers among which are having a rich body of domain-relevant knowledge and well-developed skills (Csikszentmihalyi, 1998; Smith, 1998).

Creativity potential is also affected by educational level. The more the educational level, the more the highly creative managers. In literature, the relationship between education and creative performance was not seen strictly a linear one. Simonton (1983) described the relationship between education and creative performance as curvilinear, like an inverted-U shape. Among the less educated, an increase in education was accompanied by an increase in creative performance (Richardson, 1986). Among the more educated, in contrast, an increase in education led to a decrease in creative performance. Simonton (1983) attributed this finding to the narrow focus of university education, which tended to emphasize areas of specialization (Richardson, 1986).

The relationship between income and creativity is not statistically significant for all creativity variables under study (p value >0.05 for all). The findings of the present study did not agree with other studies in which more income has been significantly correlated with emotional intelligence and creativity which, in turn, affects, job satisfaction positively (The Ministry of Health, 2010).

Conclusions

Nowadays creativity is identified as key of success and survival. So the evolutions in technology, science and management create worldwide successful organization to act depending on creativity.

Three main domains of creativity were investigated in our study and included personality, problem solving and work environment.

There is significant correlation between “Work environment may be changed to be creative”, and “Good creative potential” with educational level have. Moreover, “work environment may be changed to be creative” and income have no significant correlation. The

relationship between age and gender with all dimensions of creativity is not also statistically significant.

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