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Effects of Self-leadership, Knowledge Management and Culture on Creativity

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Abstract

Creativity and innovation are two important factors that organizations adopt to make themselves successful or to adapt change. The area of creativity and innovation has been attracting the attention of managers and entrepreneurs since last decade. This area is still unexplored in Pakistan and needs research efforts to develop better understanding on both individual and firm level creativity and innovation. This is an empirical study analyzing the effects of self-leadership, knowledge management (KM) and organizational culture on creativity. Data were collected from 227 manufacturing organizations in Pakistan. Multiple regression analysis was used to test the hypotheses. Results indicated that creativity is predicted outcome of self-leadership and knowledge management (KM). Moreover, self-leadership fully mediated the effect of culture on creativity.

Keywords: Knowledge Management, Creativity, Self-leadership, Pakistan, Culture

1. Introduction

Creativity and innovation are two important factors that organizations adopt to make themselves successful or to adapt change (Amabile, 1988; Woodman, Sawyer, and Griffin 1993). The concept of organizational

creativity identifies a relatively unexplored area in organizational change and innovation (Woodman, *et al*. 1993). Although organizational change can include innovation but much of organizational change is not innovation (DiLiello and Houghton 2008). Similarly, even though creativity may produce the new product, service, idea, or process that is implemented through innovation (Amabile 1988), innovation can also include the adaptation of pre-existing products or processes, or those created outside of the organization. Creativity for individuals and organizations exemplifies a dramatic aspect of organizational change that may provide a key to understanding change phenomena and, ultimately, organizational effectiveness and long-term survival (Woodman *et al*. 1993). Research by Amabile and her associates (Amabile, Goldfarb, and Brackfleld 1990) documented the value of examining the creativity of individuals and groups within their relevant social settings. Understanding the concept of creativity is significant for the organizations that are willing to bring change in processes and procedures, and to ensure innovation. Creativity and innovation help an organization to improve its performance and to provide basis for sustainable competitive advantage (Carmeli, Meitar, and Weisberg 2006; Schilling 2008). Creative theorists (Amabile, Barsade, Mueller, and Staw, 2005; Heye 2006) suggested that creativity is an important predictor of innovation. Creativity is an individual and cultural phenomenon that allows us to transform possibilities into reality (Tan 2007). Creativity is also defined as the individual's ability and capacity to create and develop new, novel and useful ideas about firm's products, practices, services or procedure (Mumford, 2003; Shalley and Gilson 2004). When the ideas generated in creativity are successfully implemented, it becomes innovation. An individual having higher ability to generate new, novel and useful ideas is more likely to create innovation (Woodman, Sawyer, and Griffin 1993), which in turn contributes to group and organizational innovation. On theoretical grounds, it is inferred that ability to create new and useful ideas increases the likelihood of creating innovation.

Employee innovations enable an organization to choose from a broader array of products or procedures for development and later implementation (Cummings and Oldham 1997). This innovation helps the organization to achieve sustainable competitive advantage and long-term improved and successful performance. Creativity requires absolute novelty of the idea whereas innovation only requires relative novelty of the idea to the unit of adoption (Woodman, *et al.* 1993). Therefore, adopting a new policy from another organization to the current organization would be innovative but not creative. The definition of creativity also includes an essential requirement for the idea or product to be useful. When employees produce novel and useful products or procedures, they are basically providing the organization with options. Creativity is a complex process and often comes from several sources (Schilling 2008). Amabile (2000) argued that creativity is something that does not come from external pressure rather from inner motivation, enjoyment and satisfaction. Intrinsic motivation, fueling passion and self-determination are the elements that do not only define the creativity but also paly vital role in developing and boosting the creativity. Intrinsic motivation, self-determination, encouraging positive behavior and developments of constructive thoughts come from self-leadership (Shalley and Gilson 2004). Pearce & Manz (2005) argued that self-leadership is necessary in those organizations that need continuous innovation. According to Houghton & Yoho (2005), self-leadership may mediate the influence of an organization's leadership style on the creativity of its members.

Creativity has been measured in a number of different ways, ranging from the assessment of the characteristics and personality traits of highly creative individuals to the measurement of creative products and achievements (DiLiello and Houghton 2008). Review of previous literature suggests that creativity is more likely to occur when an individual has certain characteristics or distinctive skills (Simonton, 1992; Tierney and Farmer 2002). This includes having specific knowledge embedded within social networks (Kijkuit and Ende, 2007; Weisberg 1999), intrinsic motivation and self-leadership (Houghton and Yoho, 2005), and perceives a work environment that supports creativity (Amabile, Conti, Coon, Lazenby, and Herron 1996). In short, creativity is a complex construct with various dimensions that must be carefully assessed in order to create a true and accurate composite of an individual's creative capacity (Feldhusen and Goh 1995). This study is an effort to assess creativity based on three dimensions; self-leadership, knowledge management and organizational constructive culture.

2. Conceptual Framework and Hypotheses

2.1 Self-leadership

Self-leadership is defined as a process of influencing or leading oneself through the use of specific sets of behavioral and cognitive strategies (Neck and Manz 2004). Self-leadership theorists have proposed that creativity is anticipated outcome of individuals' self-leadership (DiLiello and Houghton 2006; Neck and Houghton 2006). However, research on the relationship between self-leadership and creativity is still at the nascent stage. An additional research is needed to further clarify the relationship between self-leadership and creativity (Neck and Houghton 2006; Pratoom and Savatsomboon 2010). Shalley & Gilson (2004) advocated that individuals must have a definite level of internal force that pushes them to proceed in facing the challenges in creative work. Self-leadership is necessary in those organizations that need continuous innovation (Pearce and Manz 2005). According to Houghton and Yoho (2005), self-leadership may mediate the influence of an organization's leadership style on the creativity of its members. When employees are encouraged to lead themselves in defining problems, solving problems, making decision, and identifying opportunities and challenges both now and in the future, their creativity is encouraged. On the other hand, if employees are not encouraged to lead themselves in critical situations, then creativity is not encouraged (Pearce and Manz 2005). On the basis of discussion above it can be concluded that self-leadership is an important predictor of creativity in an organization. It enables the workers and individuals to think positively, enhancing self-determination and developing constructive thoughts. This leads the individuals to handle stress and work environment pressure by enabling them to develop creative behavior that opens the doors for creativity (Pearce and Manz 2005). Hence, self-leadership is expected to affect creativity, significantly and positively.

H1: Self-leadership has a positive direct relationship with creativity.

2.2 Knowledge Management

Knowledge Management (KM) is the formal process that concerns access to experience, knowledge, and expertise that creates new capabilities, enables superior performance, encourages innovation, and enhances customer value (Beckman 1999). Knowledge management practices involve acquiring, capturing, sharing and using knowledge and wisdom to enhance firm and individual's performance, creativity and innovation. Greater breadth of knowledge helps employees to explore and understand processes and procedures, and to develop understanding about new products and phenomena. Knowledge management assists the conversion of tacit knowledge into explicit knowledge, facilitating creative process and helping to identify gap in the knowledge base (Pratoom and Savatsomboon 2010). A key outcome of managing knowledge effectively is to have the right knowledge at the right time, so that proper values can be added, and workers can enact creative actions (Muhammed *et al.* 2008). Organizational knowledge management affects individual's creativity by developing constructive controversy among organizational members to facilitate them in taking risk, doing experiments and applying new techniques towards generating new products, procedures or services. Teigland & Wasko's (2003) study proposed a positive effect of knowledge management on creativity.

H2: Knowledge management has a positive relationship with creativity.

2.3 Organizational culture

Organizational culture is defined as the way in which members in an organization are expected to think and behave in relation both to their tasks and to other people (Cook and Rousseau 1988). Organizational culture might boost creativity in employees through norms. Norms provide social information that individuals use to understand and interpret what they experience at work. Norms that exist in an organization not only shape specific behavior, but also influence much more general type of activities in which organizational members engage (Caldwell and O'Reilly 2003; O'Reilly & Caldwell 1985). Evidences suggest that the

culture that values creativity, innovation, active risk taking, and open debate might motivate and direct individuals toward creative ideas, which in turn increases the likelihood of an innovation being generated (Hurley 1995; Tesluk 1997). Managers can directly affect employee's creativity by the way they construct teams, assignments and work environment (Amabile 2000). The valuing of innovation and active risk taking by constructive culture encourages individuals towards creativity and thus fosters innovation. The culture that encourages risk taking and experimentations increases the likelihood of generation of new and novel ideas, thus fostering the creativity.

H3: Organizational culture positively affects creativity.

Self-leadership theorists stated that contextual factors can boost self-leadership (Houghton and Yoho, 2005; Manz 1986; Pearce and Manz 2005). Organizational reward, training and culture are the factors that shape and encourage self-leadership (Manz 1986; Pearce and Manz 2005) and enable the employees to behave positively, bear external pressure, develop constructive thoughts, promote self-determination and may increase intrinsic motivation. Intrinsic motivation is central part of self-leadership (Neck and Manz 2004) and it can be increased depending on contextual factors (Shalley, Zhou, and Oldham 2004). Contextual factors have vital importance to encourage and promote self-leadership at workplace environment enabling the individuals to lead themselves in predicting creativity and innovation. The mediating role of self-leadership is expected for constructive culture to boost, promote and encourage creativity.

H4: Organizational culture positively affects creativity through self-leadership.

3. Methodology

3.1 Data Collection and Sample

The research study involved the analysis of a survey questionnaire consisting of statements relating to the self-leadership, organizational culture, knowledge management and creativity. All the survey items were measured on five-point likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Data were collected from two hundred and twenty seven (227) participants from thirty five randomly selected manufacturing organizations in Pakistan. Response rate was 68.7%. Initially, the names of producer group organizations were drawn from the list of KSE 100-index listed companies and thirty five (14%) organizations were selected using simple random sampling. Questionnaires were distributed postally and electronically to the employees of these organizations. A total three hundred and thirty questionnaires were distributed among the participants; eight to ten questionnaires per organization. Participants were assured regarding privacy, confidentiality and independence of the researcher from their organization.

Overall, two hundred and twelve participants (93.4%) were men and only fifteen participants (6.6%) were women. The age of the participant respondents ranged from 22 to 58 years (mean=33.4). Eighty six (37.9%) had an education of graduation level, one hundred and thirty eight participants (60.8%) had an education at master level or higher, however, only three participants had an education below graduation level . The participants had experience ranging from 1 to 30 years (mean=8.25).

3.2 Research Measures

3.2.1 Creativity. A five-point likert scale survey instrument was used to measure groups' knowledge management ranging from 1 (strongly disagree) to 5 (strongly agree) and was adapted from the employee creative behavior scale developed and validated by Rice (2006). All the dimensions were explored by using exploratory factor analysis (EFA). Factor loading of the items ranged from 0.67 to 0.78. Alpha value for the construct was 0.82; higher score indicated higher level of creativity. The KMO value was 0.793, chi-square was 450 with degree of freedom 15, significant at p<0,001. These statistics showed goodness of fit for EFA.

3.2.2 Self-leadership. A five-point likert scale survey instrument was used to measure groups' knowledge management ranging from 1 (strongly disagree) to 5 (strongly agree) and was adapted from the self-leadership questionnaire developed and validated by Houghton and Neck (2002). All the dimensions were explored by using exploratory factor analysis. Factor loading of the items ranged from 0.37 to 0.83.

Alpha value for the construct was 0.86; higher score on this construct indicated greater self-leadership. The KMO value was 0.878, chi-square was 595 with degree of freedom 21, significant at p<0,001. These statistics showed goodness of fit for EFA.

3.2.3 Constructive culture. A five-point likert scale survey instrument was used to measure groups' constructive culture ranging from 1 (strongly disagree) to 5 (strongly agree). This seven items scale was adapted from the constructive culture scale developed and validated by Cook and Rousseau (1988). All the dimensions were explored by using exploratory factor analysis. Factor loading of the items ranged from 0.64 to 0.81. Alpha value for the construct was 0.79, higher score showed more constructive culture. The KMO value was 0.75, chi-square was 431 with degree of freedom 21, significant at p<0,001. These statistics showed goodness of fit for EFA.

3.2.4 Knowledge management. A five-point likert scale survey instrument was used to measure groups' knowledge management ranging from 1 (strongly disagree) to 5 (strongly agree). This eight items scale was adopted from operationalization of the variable and knowledge management scale of Darroch and McNaughton (2002). All the dimensions were explored by using exploratory factor analysis. Factor loading of the items ranged from 0.55 to 0.81. Alpha value for the construct was 0.81; higher score showed higher level of knowledge management practices. The KMO value was 0.784, chi-square was 467 with degree of freedom 28, significant at p<0,001. These statistics showed goodness of fit for EFA.

4. Data Analysis

The primary analysis was correlation and multiple regression statistics. Quantitative data analysis was divided into two phases: Preliminary data analysis and hypothesis testing. In the preliminary phase raw data was cleaned up and inputted to generate Descriptive statistics, which included central tendencies, frequency distributions, correlations, mean, standard deviation, range and variance. For hypothesis testing Pearson's Correlation and multiple regressions were used to establish the degree of linear relationship between creativity, knowledge management, self-leadership and culture. In order to test indirect effect of organizational culture on creativity, Baron & Kenny's (1986) preconditions for mediation were met. According to Baron & Kenny (1986), a variable functions as a mediator when it meets the following conditions: (a) variations in levels of the independent variable significantly account for variations in the presumed mediator, (b) variations in the mediator significantly account for variations in the dependent variable, and (c) when Paths "a" and "b" are controlled, a previously significant relation between the independent and dependent variables is no longer significant.

To test the relationships between self-leadership, knowledge management, culture and creativity Correlation and multiple regressions statistical analysis was done using IBM SPSS Statistics 19. The statements regarding creativity was used as the dependent variable and self-leadership, knowledge management and culture were used as the independent variables. Table 1 presents descriptive statistics: means, standard deviations and Pearson's Correlations. There were not too many correlations observed within demographic variables except for creativity and education (r = 0.181, p< 0.01) and culture and education (r = 0.181, p <0.01). Age had negative correlations with creativity (r = -0.350, p<0.01), Culture (r = -0.144, p<0.05), knowledge management and (r = -0.389, p<0.01) self-leadership (r = -0.323, p<0.01). For the correlation between dependent and independent variables, results indicate positive associations between creativity, self-leadership, knowledge management and organizational culture. Organizational culture was positively correlated with creativity (r = 0.529, p<0.01), knowledge management (r = 0.633, p<0.01) and self-leadership (r = 0.618, p<0.01). Self-leadership had a strong positive Pearson's correlation coefficient with creativity (r = 0.712, p<0.01) and knowledge management (r = 0.779, p<0.01). Knowledge management was also found having positive correlation with creativity (r = 0.722, p<0.01).

INSERT TABLE 1 HERE

In order to run multiple regressions, creativity was taken as dependent variable and self-leadership, knowledge management and organizational culture were taken as independent variables. The results from the analysis showed the coefficients for paths from independent variables to dependent variables. Following

tables were generated from regression analysis using "Enter" method. Table 2 presents model summary, ANOVA and coefficients of the variables. In model summary, R is the square root of R-Squared and showing 76.1% correlation between the observed and predicted values of dependent variable. R-Square indicates the proportion of variance in the dependent variable (creativity) which can be explained by the independent variables (self-leadership, knowledge management and culture). This is an overall measure of the strength of association. The value of R-Square shows that 57.4% variation in creativity is being explained by the predicting variables. Remaining 42.6% variation in creativity would be because of some other factors.

The ANOVA table reports a significant F statistic ($F(2,223) = 102.305$, $p<0.001$), indicating that using the model is better than guessing the mean. Now considering the standardized regression coefficients, all of independent variables have strong significant and positive path coefficients towards creativity except from organizational culture. Standardized total effect of self-leadership for creativity is 0.368, $p<0.001$ which means the increase in self-leadership by 1 is responsible for increase in creativity by 0.368 and vice versa. This has proved the first hypothesis true that self-leadership has a positive relationship with creativity. Results from regression analysis suggest that self-leadership skills enable organizational members to face work stress and challenges and leading them towards creativity. Second hypothesis also has been supported by data as standardized effect on creativity by knowledge management (KM) is 0.406, $p<0.001$. This shows that knowledge management (KM) is responsible for 40.6% change in creativity. So far as hypothesis 3 (direct positive effect of culture on creativity) is concerned that data did not support the hypothesis. The standardized path coefficient of culture for creativity is 0.045 at $p = 0.439$, which is a small and insignificant positive relationship between the both. The proposition that work environment characterized by risk taking, open debates and supporting culture encourages motivation has not been significantly supported by the data.

INSERT TABLE 2 HERE

In order to test the indirect effect of organization culture on creativity another regression analysis was run. According to Baron & Kenny (1986), one should estimate the three following regression equations in order to test the mediation: first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator. Separate coefficients for each equation should be estimated and tested. Moreover, a perfect mediation holds if independent variable has no effect on dependent variable when mediator is controlled. Self-leadership has been taken as dependent variable and organization culture as independent variable. "Enter" method of regression has been used to get the analysis results. According to Wuensch (2008), the indirect effect is the product of standardized coefficient of path "a" (path from independent variable to the proposed mediator) with that of path "b" (path from the mediator to the dependent variable). The resultant value will be the standardized mediated (indirect) effect. Sobel (1982) technique was used to measure significance of indirect effect and t-statistics. Table 3 presents significant F statistics ($F(1,225) = 138.845$, $p<0.001$) suggests goodness of fit model. R-Square indicates that the culture is 38.2% responsible for variation in self-leadership. Standardized path coefficient of organizational culture is strong (0.618) and significant ($p<0.001$).

INSERT TABLE 3 HERE

Standardized indirect effect of organizational culture of creativity is ($0.368*0.618 = 0.227$). Indirect effect of culture was significant at the level of $p<0.001$ ($t = 4.719$, std. error = 0.0481).Hence, data fully supported the hypothesis 4 providing the evidence that organizational culture is an important predictor of self-leadership ($R2 = 0.382$, $F(1,225) = 138.845$, $p<0.001$) and has positive indirect effect on creativity.

Data of the present study fully supported the direct positive relationship between self-leadership and creativity, and suggested that people with higher level of constructive thoughts and self-determination are more likely to generate new and creative ideas. Similarly, knowledge management (KM) was also found positively correlated with creativity. On the other hand, organizational culture had no significant positive direct effect on creativity rather it had an indirect relationship with the creativity. In short, three hypotheses

(H1, H2 and H3) were met and supported by the data whereas only one hypothesis (H3) was not supported by the data.

5. Discussions and Conclusion

In order to respond quickly to dynamic customer needs, increased complexity of market mechanism and rapidly changing technologies, the selection of the right technologies, products, services and procedures is critical to a company's long-term success. Review of previous research indicates that knowledge management (KM), self-leadership and creativity are critical elements that help an individual and organization to make innovation. Innovation, therefore, provides foundation to adapt change and acquire new technologies to respond dynamic customer needs and market demand. In this research, creativity has been analyzed as a joint function and outcome of self-leadership, knowledge management (KM) and organizational culture. Creative theorists (e.g. Amabile, *et al.* 1996; Heye 2006) have argued that individual's creativity is important in itself and can be conceptualized as a necessary first step or precondition required for innovation. An organizational member with high ability to generate new and useful ideas is more likely to create their own innovation, which in turn contributes to organizational innovation (Woodman *et al.* 1993). This area is still in darkness in Pakistan and previously no or limited research efforts were made to explore this area. In the present study creativity has tested as predicted outcome of self-leadership, knowledge management and culture. After conducting correlation and regression analysis, self-leadership and knowledge management were found strong predictors of creativity in Pakistani manufacturing organizations. A strong positive and significant direct effect of self-leadership suggested that individuals with higher level of self-leadership skills such as positive self-talk, constructive thoughts, intrinsic motivation and self-determination are more likely to make creativity. Similarly, knowledge management also had a strong positive and significant direct influence on creativity supporting the hypothesis that organizations emphasizing on creation, retention and dissemination of knowledge are encouraging its individuals to do creative work. The knowledge on up-to-date processes and procedure, products and services, and technologies helps organizations to deploy this knowledge in selection and adaptation of new and useful procedures, products and/or services. Furthermore, managers having latest knowledge on business and global market practices make themselves enable to lead towards defining and responding customer and dynamic market needs.

On the other hand, data did not support the positive effect of organizational culture on creativity. It was found that culture had a small positive relationship with creativity but the effect was not statistically significant. In contrast, organizational culture had a positive indirect effect on creativity through self-leadership. The results suggested that self-leadership skills can be improved when there is a supportive culture that encourages organizational members to take risks, accept challenges and actively avail opportunities. Mangers can uplift the level of creativity when they develop and maintain proper knowledge management (KM) system and assisting employees to improve and make their self-leadership skills strong. Contextual factors such as culture should also be made supportive and positive as it plays a significant role in explaining self-leadership, which in turn leads towards creativity. As creative theorists have argued that innovation is outcome of creativity, thus fostering the level of creativity enhances the likelihood of extended innovation which ultimately helps an organization to develop and achieve sustainable competitive advantage, better company performance and long-term profitability.

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Table 1 *Means, standard deviations, and correlations*

		Mean	S.D.	1	2	3	4	5	6	7
1-	Gender	0.93	0.249							
2-	Age	33.40	6.44	.240**						
3-	Education level	1.59	0.518	-.071	.089					
4-	Experience	8.25	5.601	.209**	.807**	.121				
5-	Org. Culture	4.11	0.649	-.104	-.144*	.181**	.008			
6-	Knowledge Management	3.86	0.689	-.140*	-.389**	.095	-.207**	.633**		
7-	Creativity	3.96	0.777	-.117	-.350**	.181**	-.178**	.529**	.722**	
8-	Self-Leadership	3.92	0.832	-.134*	-.323**	.141*	-.118	.618**	.779**	.712**

*N= 227, *p<0.05, **p<0.01*

Table 2 *Regression analysis*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.621	.227		2.732	.007
	Self-Leadership	.343	.067	.368	5.130	.000
	Knowledge Management	.458	.082	.406	5.583	.000
	Culture	.054	.069	.045	.776	.439

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.761	0.579	0.574	0.50757

ANOVA Table

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	79.069	3	26.356	102.305	0.000[a]
	Residual	57.450	223	0.258		
	Total	136.519	226			

a) Dependent Variable: Creativity
b) Independent Variable: Self-leadership, Culture and KM

Table 3 *Regression analysis*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.673	.279		2.409	.017
	Culture	.791	.067	.618	11.783	.000

Model Summary

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.618	0.382	0.379	0.65618

ANOVA Table

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	59.783	1	59.783	138.845	0.000[a]
	Residual	96.879	225	0.431		
	Total	156.662	226			

a. Dependent Variable: Self-Leadership
b. Independent variables: Organizational Culture