Telecom Business Review
12 (1) 2019, 11-17
http://publishingindia.com/tbr/

A Study of Collective-Work Approach on Perceived Creativity for Enhancing Leadership Qualities in IT Companies

Rahil Meymandpour*, Zahra Bagheri, Prafulla Pawar*****

**Department of Management Sciences, Savitribai Phule Pune University, Pune, Maharashtra, India.*
Email: meymandpour.rahil@yahoo.com

***Department of Biostatistics, Shiraz University of Medical Sciences, Shiraz, Iran.*
Email: mbagherizb@gmail.com

****Department of Management Sciences, Savitribai Phule Pune University, Pune, Maharashtra, India.*
Email: mypumba@gmail.com

Abstract

The present work aims to examine the effect of collective-work approach on creativity for improving leadership qualities in an unstructured decision-making process especially in uncertainty of IT sections. Perusing related studies surrounding the current issue, it is realized managers can involve team setting policy in developing options stage of a non-programmed decision-making process since the secondary data indicate collective work can elevate creativity sources. Besides, creativity is considered as a moderator for reinforcing leadership attributes. While these qualities enhance leadership performance enabling managers to detect the optimum options when they encounter organizational chaos. Accordingly, a model of an unstructured decision-making process is hypothesized in which team-setting is considered as a predictor variable for increasing creativity sources which are recognized as moderators. Then, leadership qualities crenellated by creativity are recognized as a criterion variable for promoting leadership performance. So, the primary data are collected through 38-statements questionnaires involving collective work, creativity and leadership qualities from 86 IT managers in Pune-India being ready to approach collective work policy in their unstructured decision-making. Through correlation, regression analysis and Durbin-Watson test, it is found there is a positive relationship between the variables. The tests between-subjects effects and SEM show the predictor variables have significant interaction with the criterion variables. Besides, ANOVA illustrates there is a significant difference between the means of predictors of this study. It would be concluded team setting approach can enhance creativity to moderate the leadership qualities for an effective unstructured decision-making process.

Keywords: Collective Work, Leadership Attributes, Creativity, Unstructured Decision-Making Process

1. Introduction

Nowadays external and internal changes cause organizations to continuously encounter critical uncertainties requiring prompt, innovative and creative decision-making by management to handle abrupt critical situations through generating new and creative ideas (Goerge, 2007). Besides, unstable customers' choices are being dramatically changed requiring creative decision-making to find a novel approach to satisfy customers' unstable preferences. So, inevitable stressful situations occurring in organizations involve managers in making decisions creatively and effectively. Since decision-making is an executive function in managerial performance, creativity as a cognitive ability is required recognized as a principle for other leadership traits to handle organizational situations (Mumford et al., 1993) especially uncertain ones. Indeed, managers may confront with chaos of change which requires promotion of creativity in organizations (Aswathappa, 2008). On the other hand, as organizations need to generate creative solutions to make effective decisions in critical and novel situations which are not experienced before, scholars emphasize creativity might not be applicable in all types of decision-making since some problems are routine, repetitive and experienced. So according to situations, decisions can be divided into two types: programmed (with respect to routine and repetitive problems) and

non-programmed (with respect to unique, non-repetitive and complex problems) (Weihrich & Koontz, 2001; Singh, 2009; Ghuman & Aswathappa, 2010), the latter one requires managers' creative thinking to reach an effective decision-making in complex situations (Singh, 2009). Besides, researchers indicate decision-making is a three-phases process: defining the problem, developing feasible options and determining the optimum solution (Adair, 2013). This is while applying creative thinking is a requisite during generating alternatives (George, 2007) being the second phase of a decision-making process. Then, managers can design a sort of a decision-making process in which creativity enhancers might be implemented in the second phase of a decision-making process to develop novel solutions. Furthermore, in determining the optimum option stage of decision-making process as an executive performance; there are leadership characteristics reinforced by creativity sources (Mumford, Zaccaro, Harding, Fleishman & Reiter-Palmon, 1993). An unstructured decision is defined as a decision-making process not being experienced by an organization in the same form and there is not any predicted and ordered set of responses to encounter with this novel situation (Mintzberg, 1976). Besides, there are interrelated sources that enhance creativity in novel situations such as intellectual ability, knowledge, style of thinking, personality, motivation, environment (source of social support) (Sternberg & Lubart, 1999) and efficacy which can be self-efficacy or collective-efficacy (Bandura, 1995). On the other hand, in her componential theory of creativity Amabile (2013) emphasizes there are three intrinsic components: domain-relevant skills, creativity-relevant processes, and intrinsic task motivation and one extrinsic component: the social environment which can enhance creativity during individual's creative work process. Therefore, in an undetermined situation it is required to enhance creativity sources to generate unique solutions during the stages of developing options of a decision-making process. In this paper it is attempted to model an unstructured decision-making process through scrutinizing secondary data related to the ways of enhancing creativity and its role as a principle for promoting leadership attributes in an unstructured decision-making.

2. Brief Review of Literature

There are a huge number of studies discussing different sources as the enhancers of creativity in decision-making. Hargadon and Beckhy (2006) find out to get more creativity, involving in a social interaction lead to a confluence of retrospective foresights and new ideas. Likewise, in their study Riorden and Reilly (2011) declare community participation and brainstorming provide the inspiration of creativity. In his work Feenstra (2010) recognizes environment and society as the sources of social support being the most effective factors for enhancing creativity. He asserts during encountering an uncertain situation; individuals prefer to form a group to increase collective-efficacy as a source of creativity. Feenstra's work shows that interacting with other members and forming a group can increase some creativity sources such as collective-efficacy, extrinsic motivation, collective knowledge, etc. to enhance creativity during a decision-making process in an uncertain environment. Similarly, Tongo (2015) shows collective work improves individuals' motivation as they share their knowledge with each other. Accordingly, collective work enhances creativity sources to solve organizational problems (Hargadon & Beckhy, 2006) especially to make effective decisions in unprogrammed situations (Sternberg & Lubart, 1999; Amabile, 2013). Collective work might respectively bring about creativity sources such as supportive environment, collective knowledge, collective-efficacy and extrinsic motivation (extrinsic components). Other creativity sources as mentioned in introduction like intellectual ability, style of thinking, personality and motivation (intrinsic components), to a great extent, depend on decision makers' characteristics (managers' leadership characteristics) that would be much more significant in the last stage of a decision-making process as managers can determine the optimal option to make an effective decision in an unstructured situation. Since Mumford et al. (1993) mention leadership characteristics such as cognitive factors, personality, motivation, appraisal abilities and knowledge can promote leadership performance in organizational situations like executive functions (problem-solving, decision-making, etc.). They assert that creativity as a cognitive ability is a crucial determinant of high-level organizational leadership that is a kind of problem-solving ability (Mumford et al., 1993). Accordingly, this study models a causal relationship of the main determinants of an effective unstructured decision-making shown in Fig. 1.

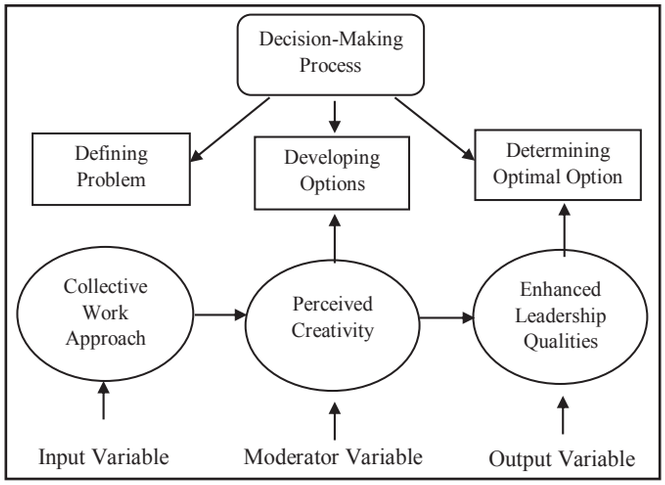

Fig. 1: A Model of Unstructured Decision-Making Process

In the light of previous works, this paper assumes a model for enhancing the effectiveness of an unstructured decision-making process in uncertain organizational situations. As noted earlier, decision-making process includes three stages. So here, in the stage of developing options, Fig. 1 suggests a collective work approach since it enhances creativity sources to develop creative solutions. Additionally, leadership qualities are reinforced by perceived creativity. So collective work as an input variable enhances creativity for developing novel options and perceived creativity as a moderator variable influences the strength of the relationship between collective work and leadership quality for determining optimal option. Herein, enhanced leadership quality is recognized as an output variable strengthened via interacting of collective work and perceived creativity. Arguing that there is a causal relationship between these three variables, the general hypotheses of this paper can be produced as the following:

- Collective work, creativity and leadership qualities have a positive relationship with each other.
- Collective work and creativity have a significant interaction to affect leadership qualities.
- Collective work and creativity as independent variables have different means.

To support or fail to support these assumptions, the research is conducted according to the designed methods declared in the following through surveying IT managers' unstructured decision-making process in incertain changes. Accordingly, the main objective of this research is to study the linear combination between the variables.

3. Research Methodology

This research is conducted in IT companies in Pune-India. Around 600 IT companies in Pune, 324 ones are in access out of which 86 IT companies ready to approach collective work in their unstructured decision-making or even share their experiences with this research. So three researcher-made questionnaires with 38 statements measuring collective work, perceived creativity and leadership qualities are purposively distributed among 86 top level managers who are recognized as the main decision-makers in IT companies. The sample size calculation formula for finite population (Godden, 2004) gives approximately the same as well. The subscales surrounding cognitive ability, knowledge, thinking, personality, motivation, social environment and efficacy are derived from the related works as mentioned before (Bandura, 1995; Sternberg & Lubart, 1999; Amabile, 2013). Furthermore, the respondents assert that in collective work approach they prefer to make unstructured decisions with the cooperation of other concerned managers. Meanwhile the feasibility of the research is supported through measuring the consistency and accuracy of questionnaires as the figures achieved show cronbach's alpha > 0.80, percentage of variance > 60%, factor loadings > 0.4 and confirmatory factor analysis shows significant estimated figures and T-values as well.

4. Data Analysis

According to Pearson correlation analysis, the variables; collective work, perceived creativity and leadership quality show significant correlation of more than 0.72 with each other at 0.01 level of significance. Besides to this, the regression coefficients analysis and Durbin-Watson test give the following data:

Table 1: Regression Coefficients Analysis

Coefficients[a]						
Model B		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Std. Error	Beta			
1	(Constant)	13.242	3.047		4.346	.000
	Team Work	.333	.080	.363	4.184	.000
	Creativity	.385	.062	.535	6.161	.000

a. Dependent Variable: Leadership Quality

Table 1 illustrates there is a positive relationship between the variables with significant level less than 0.05 as leadership quality increases by 0.80 and 0.62, when there is an increase in team work and creativity by 1 unit, respectively.

Table 2: Durbin-Watson Test Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.836[a]	.699	.692	2.79098	1.731
a. Predictors: (Constant), Creativity, Team Work a. Dependent Variable: Leadership Quality					

It is obvious from Table 2, there is a positive serial correlation between the variables as the Durbin-Watson test shows a significant level less than 2.

ANOVA is carried out to find out whether there is a significant difference between the means of independent variables:

Table 3: One Way Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1501.557	2	750.779	96.382	.000[b]
	Residual	646.536	83	7.790		
	Total	2148.093	85			

a. Dependent Variable: Leadership Quality
b. Predictors: (Constant), Creativity, Team Work

It is seen in Table 3 the level of significance < 0.05 in F test achieved through ANOVA shows there is a significant difference between the means of predictor variables of this study.

To test the significance of interaction of predictor variables on criterion variable; tests of between-subjects effects run through SPSS and structural equation modeling (SEM) run through LISREL are conducted as the following:

Table 4: Tests of Between-Subjects Effects

Dependent Variable: Leadership Quality					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1888.404[a]	27	69.941	15.621	.000
Intercept	67282.155	1	67282.155	15027.091	.000
Team Work	177.182	10	17.718	3.957	.000
Creativity	444.698	9	49.411	11.036	.000
Team Work * Creativity	141.628	6	23.605	5.272	.000
Error	259.689	58	4.477		
Total	258790.000	86			
Corrected Total	2148.093	85			

a. R Squared = .879 (Adjusted R Squared = .823)

It is illustrated in Table 4, the interaction of collective work and creativity on leadership quality is significant at the level of significance of 0.000.

Moreover, the interaction of predictor variables on criterion variable is tested through SEM:

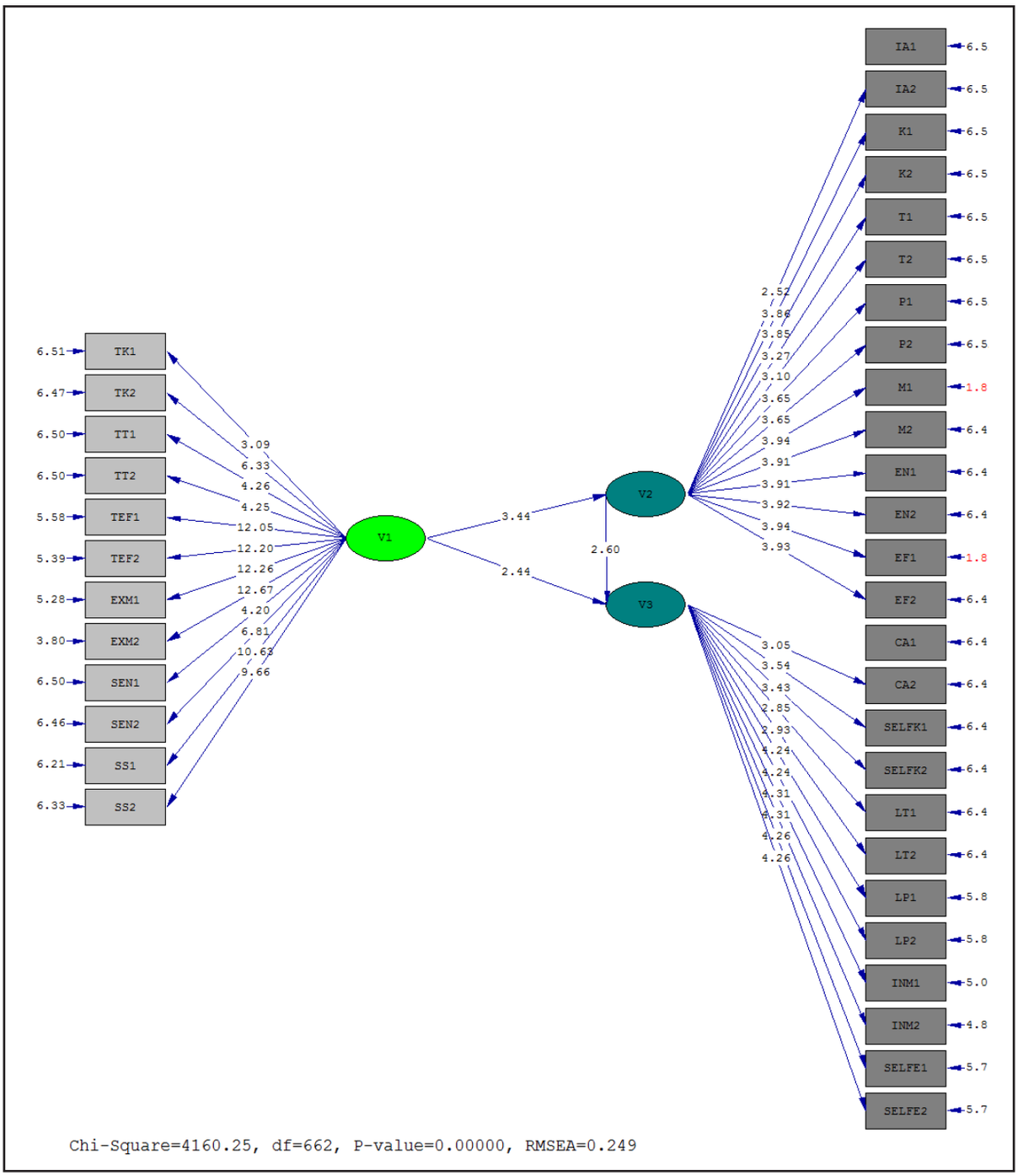

Fig. 2: The Illustration of Interaction of the Independent Variables on the Dependent Variable. v1: Collective Work, v2: Perceived Creativity, v3: Leadership Quality

In Fig. 2, the estimated figures achieved through SEM show collective work and perceived creativity have a significant interaction on leadership quality.

5. Hypotheses-Testing Results

Through the Figs. attained in data analyses the following results can be declared:

- The correleation analysis, Durbin-Watson test and regression analysis show collective work, creativity and leadership qualities have a positive relationship with each other.
- Tests of Between-Subjects Effects and SEM show collective work and creativity have a significant interaction to affect leadership qualities.
- ANOVA shows collective work and creativity as independent variables have different means.

Furthermore, it is found collective work has a positive effect on creativity as well as creativity has a positive effect on leadership qualities. Considering the findings of the linear relationship between collective work, creativity and leadership quality, consequently the objective of this study is achieved.

6. Discussion

Emerging abrupt technological changes in organizations especially in IT sections induces top level managers to approach policies actuating their cognitive capacities to be more creative in generating novel solutions. Related studies suggest collective-work approach incorporated in unstructured decision-making as an enhancer for perceiving more creativity. This study aims to examine the linear relationship between the collective work, perceived creativity and leadership qualities in an unstructured decision-making process. It is assumed collective work approach during an unstructured decision-making process enhance decision-makers' creativity in developing options. Supposedly, the perceived creativity may lead leadership qualities to be improved in order to determine the optimal options in decision-making. This causal relationship is tested through collecting data in IT companies in Pune-India among top level managers. Similarly, the results declare collective work helps managers to perceive creativity more to develop options collaboratively during the first stages of decision-making, then the perceived creativity increases their leadership qualities to determine the optimal options individually during the last stages of decision-making. As far as the top level managers (of IT companies in Pune-India) assert they prefer to make unplanned decisions with other managers, the members of collective work are confined to managers. Additionally, as other organizational hierarchies are not included in this study, the findings can neither be attributed to other levels nor to other companies at any time. With regard to the achieved findings of the current work it can be concluded the IT managers could improve their leadership characteristics to determine optimum options in unstructured decision-making through collective-work approach which enhances their creativity perception.

References

Adair, J. (2013). *Decision making and problem solving*. Kogan Page. ISBN 978-0-7494-6696-1

Amabile, T. M. (2013). Componential theory of creativity. In: Kessler, E.H., Ed., *Encyclopedia of Management Theory,* pp. 134-139. Sage Publications, London.

Aswathappa, K. (2008). *Organizational behavior: Text, cases & games*. Himalaya Publishing House.

Feenstra, R. H. (2010). *The role of creativity in naturalistic decision-making environments: A systems approach.* UNLV Theses, Dissertations, Professional papers, and Capstones, Paper 743.

George, J. M. (2007). Chapter 9: Creativity in organizations. *The Academy of Management Annals, 1*(1), 439-477.

Ghuman, K., & Aswathappa, K. (2010). *Management: Concept, practice and cases*. McGraw Hill: New Delhi. ISBN 9780-07-068218-4

Godden, B. (2004, January). Sample size formulas. Retrieved from http://williamgodden.com/samplesize-formula.pdf

Hargadon, A. B, & Bechky, B. A. (2006). When collections of creatives become creative collectives: A field study of problem solving at work. *Organization Science, 17*(4), 484-500.

Mintzberg, H., Raisinghani, D., & Theoret, A. (1976). The structure of unstructured decision processes. *Administrative Science Quarterly, 21*(2), 246-275.

Mumford, M. D., Zaccaro, S. J., Harding, F. D., Fleishman, E. A., & Reiter-Palmon, R. (1993). *Cognitive and temperament predictors of executive ability: Principles for developing leadership capacity.* Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Riordan, N. O., & Reilly, O. P. (2011). Virtual worlds: S(t)imulating creativity in decision making. *Journal of Decision Systems, 20*(3), 325-351.

Singh, N. (2009). *Organizational behaviour: Concepts, theory and practices: Managing people in the 21st century*. Deep and Deep Publications: New Delhi. ISBN 81-7629-287-7

Tongo, C. I. (2015). Collective work motivation in knowledge based organizations. *Team Performance Management, 21*(7/8), 386-404.

Weihrch, H., & Koontz, H. (2001). *Management: A global perspective.* Tata Mc Graw-Hill. ISBN 0-07-047378-1