



## THE RELATIONSHIP BETWEEN SOCIAL CAPITAL DIMENSIONS AND INNOVATIVE WORK BEHAVIOR OF INDIAN SCIENTISTS.

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### Abstract

In this technologically advanced world innovation is recognized as the key variable by the organizations to remain competitive, viable and effective. Innovation in products and services not only brings the advantage to the organizations but also influences the growth and development of nations' economy. The innovation is completely depends on the innovative work behavior of the workforce, but inadequate research is observed on this. This empirical study attempts to find the relationship between social capital dimensions (structural, relational and cognitive dimensions) and innovative work behavior among the scientists of ICAR. The results reveal that there is a significant relationship between study variables. The independent variable, i.e. cognitive dimension found to be more significant predictor of innovative behavior.

**Keywords:** Innovative Work Behavior, Cognitive Dimension, Structural Dimensions, Relational Dimension.

### 1. Introduction

In this open economy organizations are looking for optimal utilization of available resources and most of the researchers identified human resource as key element in brining competitiveness. Tapping the knowledge of employees and in the organizational systems is a new practice in the organizations. Since the organizations are work for some common goals and objectives, the employees also need to collaborate and coordinate with each other in performing duties. The concept of social capital is more involves in the organizations process and its people. The knowledge of people in the organizations will increase by its use and application. Innovation has become the need of the hour to satisfy the growing people needs and it also become the need for organizations to be in competition and to grab the market. The innovativeness of the organization depends on the innovative behavior of the people working in the organizational processes. This paper discusses the issues associated with the behavior of individuals' i.e employees' social capital. As humans are social beings it is obvious that they work together for a common goal. It is very important to understand the behavior of individual with his/her own group or with other groups. Many theories like social capital theory and social cognitive theories have stressed the importance of social capital in doing a particular team work. ICAR is one of the largest agricultural research organizations in the world. The scientists of these organizations are well known for their innovations. It has over 100 research organizations spread across India. Specifically this paper stresses the three dimensions of social capital; they are structural dimension, relational dimension and cognitive dimension. All the subject variables are explained in detail below.

### 2. Theoretical background

#### 2.1. Innovative Work Behavior

Innovation is the most buzzing word in the 21<sup>st</sup> century. It doesn't have a universal definition and it has different dimensions based on its use. West and Farr (1990) described innovation as the introduction of ideas, products, process and procedures intentionally and applying the same for the benefit of individuals, groups, organizational and society at large. Jain (2010) described it as a social process in view of the interaction between those who innovate and those who are affected by the innovation. Since innovation is considered as multistage process (Kanter,1988) it is necessary to mange innovation at different level wherein individual, group, networks and organizational level are included. (King and Anderson,2002) .

The point of discussion is how to management the innovation in research organizations. For this Kanter (1988) focused on understanding the work behavior of individuals in each stage of innovation process and wheelwright and Clark (1995) outlined the tasks involved in innovation into four stages i.e idea generation, coalition, idea realization and transfer or diffusion. Yuan and Woodman (2010), also identified the innovative work behavior as an important indicator of innovation. The work of West and Farr (1989), defines IWB as an employee's action directed at the generation, application and implementation of novelty ideas, products, processes, and methods to his or her job position, departmental unit, or organization. Scott and Bruce (1994) also described Innovative work behavior as a constructive multi-stage process consisting idea generation coalition building and implementation. Scott and Bruce (1994) pointed that the introduction of new useful perspectives run on constructive multistage process includes idea generation, coalition building and implementation but not on the usual liner relationships. This study opted innovative work behavior from Scott and Bruce's (1994).



## 2.2. Social capital:

The social capital is a contemporary research topic with a multidisciplinary and multi-facets nature. Over the period the concept of social capital has expanded its scope from sociological view to management and is further extending to innovation. Business science researcher's interested in studying the relationships, networks and interactions in the growing collaborative actions between organizational functions and competent areas. The growing importance of social capital in bringing the innovation is increasingly acknowledged in the literature. In the initial works of Pierre Bourdieu (1977, 1980, 1983) defined social capital as resources, support or services gained simply by being in the group and James Coleman (1988) has built the previous idea of human capital, they introduced the concept of social capital in relation with the human capital of Schultz (1961) and Becker (1964). He points that networks built an environment of cooperative relations and trust only with strong cohesive social ties.

The second phase of social capital was reflected in works of Putnam (1995) and Nahapiet & Ghoshal (1998). According to Putnam (1995) social capital is defined as networks, norms and trust which enables the individual group members to work together more effectively to pursue shared goals and objectives. Nahapiet & Ghoshal (1998) grouped social capital into three different dimensions: structural, relational and cognitive dimensions. Structural dimension specifies the structural capital of an individual by reflecting in their position. In the power hierarchy the position describes his limits and the authority. It gives flexibility to individuals (Gargiulo & Benassi, 2000) with wider range of information (Burt, 1992, Hansen, 1999), and thus it provides greater advantage to the individuals. Relational dimension is to facilitate individual's actions within the structure. It helps to connect with the people in the organization and frequency of the interactions (Scott, 1991). Cognitive dimension of social capital develops in individuals through sharing the same practice, knowledge, skills, norms of practice and specialized discourse. It enables the individuals to collaborate effectively (Nahapiet & Ghoshal, 1998).

## 3. Objective & Hypotheses

*The objective:*

The main objective of the paper is to find the relationship between three dimensions of social capital and innovative work behavior of scientists working in the ICAR organization.

*Hypotheses:*

These concepts motivated to form following hypotheses for explore the relationship of social capital dimensions (structural, relational and cognitive dimensions) and innovative work behavior among the scientists working with various establishments of ICAR.

H1: There is positive and significant relationship between structural aspect of social capital and innovative work behavior.

H2: There is positive and significant relationship between relational aspect of social capital and innovative work behavior.

H3: There is positive and significant relationship between cognitive aspect of social capital and innovative work behavior.

H4: Simultaneously, all dimensions of social capital have equal and significant impact on the innovative work behavior.

## 4. Methodology

Designing of proper methodology is an important feature of conducting a successful research. The study is descriptive in nature. The work is an attempt to understand the behavior of scientists' liaisons toward the social capitals and innovative work behavior. The well developed measures have been adopted to conduct the field survey among the scientists of ICAR from the establishments in north part of India. Social capital measure has been opted from Wing S. Chow, Lai Sheung Chan (2008), Shu-Chen Yanga, Cheng-Kiang Farnb (2009) with three dimensions (Structural, 5 items, Cronbach's Alpha=0.882, Relational, 10 items, Cronbach's Alpha= 0.756, Cognitive, 10 items, Cronbach's Alpha= 0.766). Also, the measure for innovative work behavior has been opted from scott and bruce's (1994) with 9 items (Cronbach's Alpha= 0.884) to measure the individual innovative behavior in the workplace. Valid responses of 430 scientists have been analyzed with the help of SPSS 20.0. The hypotheses have been evaluated through the statistical tools like correlation and regression.

## 5. Findings and Discussion

The demographics profiles of respondents were as below:

Majority of the respondents were male = 59.5%, Female = 40.5%. Ages of maximum respondent were 36-45, 35.1%. Most of them were married, 87.7%. Also they were highly educated with PhD degree, 89.1%.



The table 1 shows the mean value, standard deviation and Pearson correlation. The responses toward dimension of social capitals and innovative work behavior found to be in affirmative side and free from outliers, i.e., data are normally distributed.

**Table1: Mean, Standard Deviation (SD) & Correlation**

		Mean	S.D.	STRD	RELD	COGD	IWB
STRD	Pearson Correlation	3.93	.708	1			
	Sig. (2-tailed)						
RELD	Pearson Correlation	3.43	.499	.265**	1		
	Sig. (2-tailed)			.000			
COGD	Pearson Correlation	3.72	.554	.531**	.758**	1	
	Sig. (2-tailed)			.000	.000		
IWB	Pearson Correlation	3.78	.602	.818**	.202**	.452**	1
	Sig. (2-tailed)			.000	.000	.000	

\*\* Correlation is significant at the 0.01 level (2-tailed). No. of respondents= 430.

The structural dimensions of social capital found to be positively and significantly related with innovative work behavior, i.e.,  $r = 0.818$ ,  $p < 0.01$ . The correlation value is strong between these two variables. Therefore, hypothesis H1 has been accepted. Similarly, the relational aspect of social capital found to be positively and significantly related with innovative work behavior, i.e.  $r = 0.202$ ,  $p < 0.01$ , though correlation between these variables is weak. Hence, hypothesis H2 has been accepted. Also, the cognitive dimensions of social capital found to be positively and significantly related with innovative work behavior, i.e.,  $r = 0.452$ ,  $p < 0.01$ . There correlation is also not strong even hypothesis H3 has been accepted.

The fourth hypothesis has been evaluated with the use of linear regression analysis among innovative work behavior and dimensions of social capitals. The Table2 shows the evidence for model summary. Here, model has been found to be the acceptable value of R-square, i.e. 0.671.

**Table 2: Model Summary**

Model	R	R Square	Adjusted Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.819 <sup>a</sup>	.671	.669	.347	.671	289.844	3	426	.000

a. Predictors: (Constant), COGD, STRD, RELD.

The table 3 of ANOVA explains the acceptance of regression model with value of  $F = 289.844$  (sig = 0.00).

**Table 3: ANOVA**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	104.421	3	34.807	289.844	.000 <sup>b</sup>
	Residual	51.158	426	.120		
	Total	155.578	429			

a. Dependent Variable: IWB

b. Predictors: (Constant), COGD, STRD, RELD

The table 4 verifies that data is free from multicollinearity. Also, the table 4 shows the magnitude of dependency of independent variables (dimensions of social capital i.e., STRD, RELD, COGD) on dependent variable, i.e. innovative work behavior (IWB).



**Table 4: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.082	.133		8.132	.000		
	STRD	.673	.029	.790	23.345	.000	.673	1.485
	RELD	-.090	.053	-.074	-1.691	.092	.399	2.504
	COGD	.096	.054	.088	1.768	.078	.308	3.243

a. Dependent Variable: IWB

The table 4 demonstrated that ‘structural’ aspect of social capital has major contribution on ‘innovative work behavior’ with standard coefficient of B = 0.790. While other aspects viz. ‘relational’ and ‘cognitive’ doesn’t have significant impact compare to ‘structural’ aspect. This finding establishes the importance of well structured network of actors (i.e. scientists) and collective units (i.e. project/institutional team). Therefore, hypothesis H4 is rejected. The new equation of linear regression may be written as below:

$$IWB = (0.790) STRD + (-0.074) RELD + (0.088) COGD + 1.082$$

The findings provide insights that innovative work behavior has been influenced by social capital. Not all the dimensions of social capital have strong impact on innovative work behavior. Only, structural aspect provides strong influence to shape the innovative work behavior. It means that, the support of stake holders are required to enhance the innovative work behavior for scientists (Putnam; 1995). Such, structural support are very important for them to remain positive toward innovation and related works. The study has been done on one time data collection. The future longitudinal study could provide more string arguments. The arguments and findings have the potential for application in other fields.

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