

# WORK ENGAGEMENT AS A MEDIATOR OF BIG FIVE PERSONALITY TRAITS AND KNOWLEDGE SHARING

Namita Rajput\*

Amogh Talan\*\*

## **P**URPOSE

*THE aim of this study was to examine the interrelationship between certain interpersonal psychological factors and knowledge sharing behaviors. Work Engagement was considered to be the mediator of the relationship between Big Five Personality Traits and Knowledge Sharing.*

**Design/Methodology/Approach:** *“Big Five Personality Traits” scaled by Gosling, Rentfrow, & Swann, (2003), “Utrecht Work Engagement” scale developed by Schaufeli & Bakker (2003) and “Knowledge Sharing Behavior” (KSB) scale developed by Yi (2009) were used in the construction of the questionnaire. Data was collected from 450 valid questionnaires distributed across knowledge based organizations. SmartPLS 2.0.M3 software was used to apply ‘Partial Least Square’ technique of ‘Structural Equation Modeling’ in order to analyze the proposed associations.*

**Findings:** *Among Big Five Personality Traits, conscientiousness was found to be the most significant trait in explaining the knowledge sharing. Openness to experience was, however, found to be insignificant. Work Engagement was also found to be an important factor to promote knowledge sharing, however, its performance was found to be comparatively lower than other factors considered in our study.*

**Research Limitations/Implications:** *The accuracy of the analysis is dependent upon the accuracy of the data reported by selected organizations.*

**Practical Implications:** *The results of this study would help knowledge based organizations to better understand the effect of interpersonal factors on knowledge sharing, hence finding optimal ways to improve knowledge sharing.*

**Originality/value:** *This is one of the few researches which have been conducted in India that studies the relationship of interpersonal factors on knowledge sharing.*

**Key Words:** *Knowledge Sharing, Personality, Work Engagement, Mediation.*

## Introduction

Knowledge sharing has been shown to reduce costs in organizations, promote new product developments, improve group dynamics, and increase organization’s competitive abilities (Cummings, 2004).

However, encouragement of “knowledge sharing” can be perplexing in the organizations. According to Argote, Gruenfeld, & Naquin, (2001), it may give a sensation of misplacing a ‘personal asset’ to individuals as the person may feel like he’s ‘loosing’ his knowledge in the process of sharing it. This is the reason

\* Associate Professor, Sri Aurobindo College, University of Delhi, Delhi, India.

\*\* Assistant Professor, College of Vocational Studies, University of Delhi, Delhi, India.

why most of the administrators these days find it to be extremely challenging to promote knowledge and encourage employees to share knowledge in the organization (Kogut and Zander, 1992).

Numerous interpersonal factors have the ability to hamper the aptitude and intention of employees to share knowledge, causing the failure of even the most sophisticated knowledge management frameworks implemented by the organizations meant to promote knowledge sharing (Bock, Zmud, Kim, & Lee, 2005).

Knowledge Sharing can be explored within various perspectives comprising of organizational and cultural, interpersonal and group characteristics, or motivational (Wang & Noe, 2010).

Research at individual level concerning Knowledge Sharing has been pioneered in psychology (Lin, 2007; Lin, 2007 (a), (b)), strategic management (Reagans & McEvily, 2003), information sciences (Wasko & Faraj, 2005), and organizational behavior (Bordia, Irmer, & Abusah, 2006).

There are several reasons which could explain why knowledge management systems in the organizations fail, but one of the most prominent one is that they fail to acknowledge the interpersonal factors during the implementation which impact the knowledge sharing at the organizational or individual level (Voelpel, Dous, & Davenport, 2005).

Various other aspects are identified to indirectly or directly affect the psychology of knowledge sharing such as characteristics of management and other management aspects such as incentives or rewards designed to endorse knowledge sharing (Cabrera & Cabrera, 2002); characteristics of the environment (Levin & Cross, 2004); and the individual characteristics of those who are owners of the knowledge such as their personality. Such interpersonal factors may be the strength of connotation with the management and the association, interpersonal trust in management and the coworkers, and other motivational factors which would eventually support them on determining whether to conceal or share the knowledge they possess (Levin & Cross, 2004).

There is a dearth of studies investigating the interactions between various interpersonal factors in explaining the knowledge sharing (Mooradian, Renzl, & Matzler, 2006). In our research paper, we focus on studying the mediating role of Work Engagement, in explaining the relations between Big Five Personality Traits and Knowledge Sharing.

## **Literature Review**

### **Knowledge Sharing**

Knowledge Sharing can be defined as the provision or receipt of task information, know-how and feedback regarding a product or procedure (Cummings, 2004), which signifies a socially interactive culture encompassing the exchange of knowledge, experiences, skills, abilities, and values within or between organizations. Knowledge sharing is a 'two-way' procedure concerning both the supply and demand of the knowledge generated (Ardichvill, Page, & Wentling, 2003).

For sustainable development of any organization, the promotion and sharing of novel knowledge is instrumental (Nonaka & Takeuchi, 1995). In order to attain a sustainable competitive advantage in any organization which is inheritably knowledge based, it is vital that the employees be motivated and encouraged to produce new 'knowledge' and apply the same in the most efficient manner (Davenport & Prusak, 1998).

At individual level, knowledge sharing has its origins in the social exchange theory, where the personnel, through social collaboration, would generate more effectiveness in the behaviors essential for job success (Lin, 2007a).

At the organizational level, however, the knowledge sharing is about the formulation, coordination and organization, capturing, reusing and relocating the experience-based knowledge, which exists within the organization, to the needful departments and sections within or outside the organization,

making the knowledge accessible to others and producing novel knowledge based on the prevailing one.

Knowledge sharing plays a significant role in assisting organizations in retaining and maintaining the intellectual capital, even after the knowledge holder leaves the organization. This enhances the productivity and profitability of the organization which eventually results in sustainability and value addition in the organization (Lin, 2007b). Mutsuddi (2016) concluded that employee participation had the highest impact on employee retention and engagement. Srivastava (2003) concluded that organizations would experience constant pressure to ease out misfits and to upgrade a series of conditions of better employees in order to retain them. Singh & Sharma (2008 (a), (b), (c), (d), 2011 (a), (b)) found a correlation between organisational culture, organisational learning, collaboration, innovation and knowledge management. Sinha, Singh, Gupta, & Dutt (2010) suggested that greater work involvement leads to higher level of motivation and engagement with the organization, and this would result in increased performance.

### **Personality and Knowledge Sharing**

Personality refers to the individual differences in characteristic patterns of thinking, feeling, and behaving.

Personality is a highly consistent attribute which stays uniform over a variety of situations, and has been known to elucidate the differences in diversity of human actions, choices, attitudes, and behaviors (Landers & Lounsbury, 2006).

There are numerous characteristics of personality which could be expounded through various theories. One of such theories is the Five-Factor Model (FFM) which best describes the inconsistency in personality traits, making it the most inclusive and extensively used theory of personality (Zhang & Huang, 2001).

Lewis Goldberg (1990) projected the Five-Factor Model encompassing five dimensions of personality, nicknamed the “Big Five” comprising of openness to experience, extraversion, conscientiousness, agreeableness, and emotional stability.

Only a handful of studies have been done to establish the association of personality traits with knowledge sharing. A study conducted by Agyemang, Dzandu, & Boateng, 2016 found all traits of Big-Five except conscientiousness to be significantly encouraging the knowledge sharing among teachers. Similarly, conscientiousness and extraversion were found to be significant predictors of knowledge sharing behaviors in classrooms (Chong, Teh, & Tan, 2014). According to Cabrera, Collins, & Salgado (2006) only conscientiousness, agreeableness, and openness were found to be significantly predictors of knowledge sharing. In a study conducted by Mooradian et al., (2006), agreeableness was found to encourage knowledge sharing behaviors through an augmentation of trust among the employees.

### **Work Engagement and Knowledge Sharing**

Schaufeli, Salanova, Gonzalez-Roma, & Bakker (2002) defines engagement as positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption. Accordingly, work engagement is known to be tenacious and prevalent attribution, originating from deeper cognitive state of mind, which is not focused towards a particular situation, but is a result of the influence of multiple interpersonal factors acting overtime on the individual. In a research conducted among the students of a university, Tang, Bavik, Chen, & Tjosvold (2015) found employee engagement to be negatively associated with knowledge concealing, and positively with knowledge sharing. Chen, Zhang, & Vogel (2011) found work engagement to promote knowledge sharing by reducing task and relationship conflicts.

### **Personality and Work Engagement**

Certain personality traits have been found to be more susceptibility to induce work engagement among employees due to the distinctiveness of their behaviors (Xanthopoulou, Bakker, Demerouti,

& Schaufeli, 2009). All the big five personality traits have been found to significantly predict employee engagement (Akhtar, Boustani, Tsivrikos, & Chamorro-Premuzic, 2015). Inceoglu & Warr (2011) found that high levels extraversion results in more work engagement among employees, while high neuroticism was found to be related to burnout. Kim, Shin, & Swanger (2009) found conscientiousness to be the most prominent personality trait among Big Five in order to explain work engagement. This, they explain, is due to the fact that work engagement is fundamentally and inherently associated with accomplishment of goals, and that conscientiousness influences the work engagement through this fundamental level. Wefald, Reichard, & Serrano (2011) found agreeableness, in addition to extraversion and conscientiousness, to be significant predictor of work engagement. Inceoglu & Warr (2011) found creative thinking among employees, which is an aspect of openness, to be a predictor of engagement. Akhtar et al. (2015) found conscientiousness, openness to experience and extraversion to significantly explain work engagement.

## Hypotheses

Based on the theoretical and empirical arguments discussed above, we propose the following hypotheses:

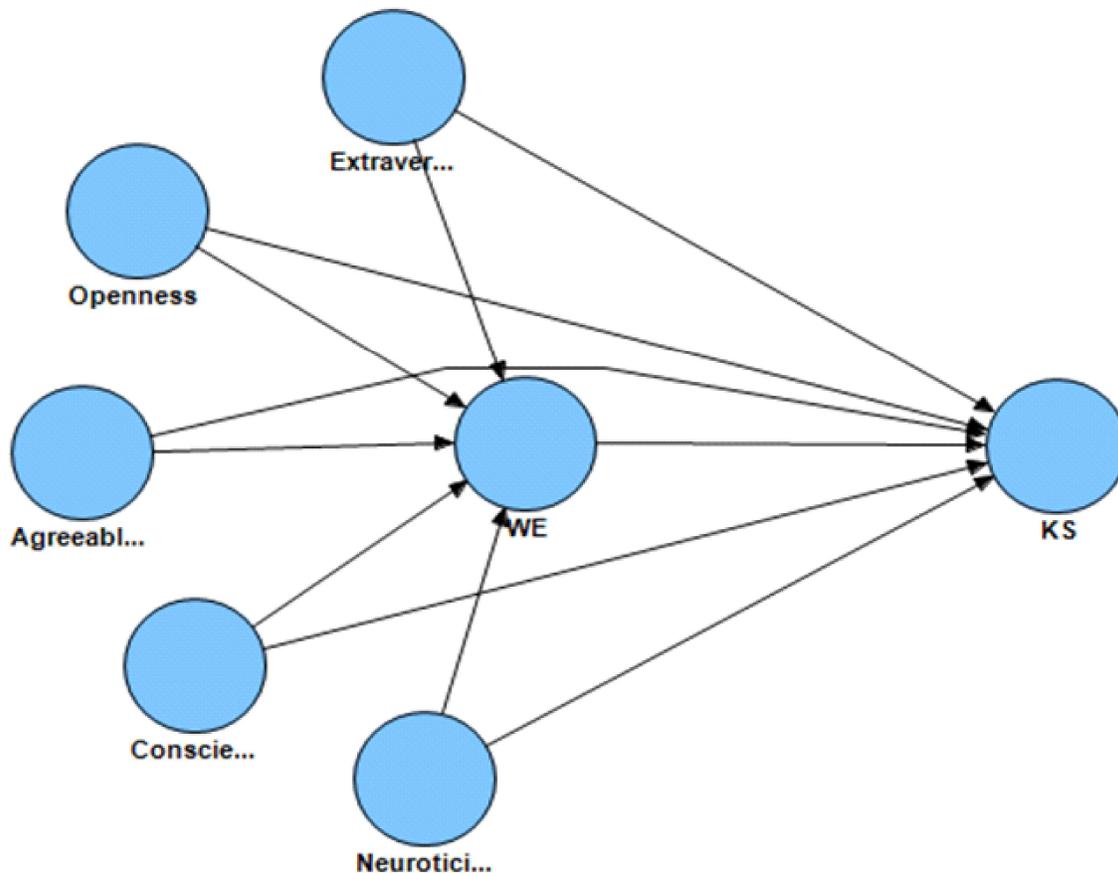
### Work Engagement as a Mediator

H1: Personality will significantly affect Work Engagement

H2: Work Engagement will significantly explain Knowledge Sharing

H3: Work Engagement will mediate the relation between Personality Traits and Knowledge Sharing.

The proposed hypotheses can be represented diagrammatically as presented in figure no. 1 below:



**Figure No. 1: Interrelationship between Personality, Work Engagement, and Knowledge Sharing**

## **Research Method**

### **Sample and Data Collection**

As our study aims to examine the factors accountable for knowledge sharing, it was only rational to collect data from a population where knowledge sharing among coworkers and management is an important characteristic for an effective team performance and hence for the overall success of the association/department. For this purpose, organizations from 'Information and Communication Technology' (ICT) based industry and financial organizations located in Delhi and Delhi-NCR regions were selected for the purpose of collection of data, frequently categorized as 'knowledge-based' industries. Data were gathered through 'survey method' from top-to-middle level of employees from these organizations who were part of teams working on projects. This study comprises variables belonging to reflective models only. In total, 450 valid questionnaires were received out of a total of 600 distributed.

### **Instrumentation**

In our research, the questionnaires used to quantify the variables were adapted from other studies. All scales have multiple sub-dimensions. Work Engagement and Knowledge Sharing were measured using five point Likert scale (ranging from "1 = Never to 5 = Always; and 1 = strongly disagree to 5 = strongly agree" respectively).

Big Five personality traits were measured using 'Ten-Item Personality Inventory'-(TIPI) created by Gosling et al. (2003), which were measured on a seven point Likert scale (ranging from "1 = strongly disagree" to "7 = strongly agree").

Work engagement was measured using shortened-version containing 9 items of "Utrecht Work Engagement Scale" developed by Schaufeli & Bakker (2003).

Finally, knowledge sharing was measured through 28 questions "Knowledge Sharing Behavior" (KSB) questionnaire constructed by Yi (2009). The four sub-scales of KSB scale are-"written contributions (5-items), organizational communications (8-items), personal interactions (8-items), and communities of practice (7-items)".

## **Data Analysis and Results**

The relationships between the variables were assessed using Structural Equation Modeling through Partial Least Squares (PLS) approach. The analysis in our study was conducted using SmartPLS 2.0.M3 (Ringle, Wende, & Will, 2005). According to Hulland (1999), assessment and interpretation of a PLS model is a two-step process. In the first step, reliability and validity analysis is conducted for the measurement model. In the second step, the predictability and significance of the paths between constructs in the structural model is evaluated.

Evaluation of the SEM Model requires following steps: Initially, the reflective model is analyzed wherein, internal consistency is calculated, followed by calculating the reliability of the indicators proposed in the model, followed by testing the convergent validity (AVE), and lastly testing the discriminant validity.

After the analysis of the reflective model, we analyze the structural model on the basis of relevance and significance of the relations between the variables. First, structural model is analyzed for any issues arising out of collinearity. Then, relevance and significance of the relationships proposed in the structural model are analyzed. After this,  $R^2$  (or coefficient of determination) value is calculated.

### **Internal Consistency (composite reliability) and Indicator Reliability**

Cronbach (1951) devised a statistical method which divided the data in every possible 2 ways and relies on the average of the correlations of all such potential pairs. Such average is called Cronbach's Alpha,  $\alpha$ , which is considered to be a good measure of the reliability of the scale concerned.

Cronbach's  $\alpha$  is:

$$\alpha = \frac{N^2 \text{Cov}}{\sum s_{\text{item}}^2 + \sum \text{Cov}_{\text{item}}}$$

Table no. 1 shows the results of the Cronbach's  $\alpha$  calculated for every scale and sub-scale wherever applicable.

**Table No. 1: Measurement of Reliability**

Variables	Cronbach's $\alpha$	Variables	Cronbach's $\alpha$
<b>Extraversion</b>	0.94	<b>Personal interaction</b>	0.91
<b>Openness</b>	0.76	<b>Communities of practice</b>	0.89
<b>Agreeableness</b>	0.94	<b>Vigor</b>	0.87
<b>Conscientiousness</b>	0.96	<b>Dedication</b>	0.78
<b>Emotional stability</b>	0.93	<b>Adsorption</b>	0.82
<b>Written contribution</b>	0.88		
<b>Organizational comm.</b>	0.91		

The value of Cronbach's  $\alpha$  shows the reliability of the overall scale. According to Kline (1999), value of Cronbach's alpha of 0.8 or greater is considered to be acceptable for psychological tests such as intelligence tests, however in the tests measuring the abilities, the value of greater than 0.7 is acceptable. Accordingly, all of our constructs meet this requirement.

**Convergent Validity (Average Variance Extracted)**

Convergent validity shows the magnitude to which a measure positively correlates with substitute measures of the same construct. In order to determine the convergent validity for a construct, Average Variance Extracted (AVE) is used.

The results of AVEs for different constructs and sub-constructs used in our model are presented in table no. 2.

**Table No. 2: Measurement of Convergent Validity**

Variables	AVE	Variables	AVE
<b>Extraversion</b>	0.96	<b>Personal interaction</b>	0.63
<b>Openness</b>	0.82	<b>Communities of practice</b>	0.63
<b>Agreeableness</b>	0.95	<b>Vigor</b>	0.78
<b>Conscientiousness</b>	0.96	<b>Dedication</b>	0.67
<b>Emotional stability</b>	0.97	<b>Absorption</b>	0.74
<b>Written contribution</b>	0.67		
<b>Organizational comm.</b>	0.61		

Table no. 2 shows that all of our constructs have AVEs > 0.5. Therefore, we can say that such constructs, and hence entire model meets the convergent validity requirement.

**Discriminant Validity**

Discriminant validity shows the uniqueness of a construct in comparison with other constructs on the basis of experiential criteria. If discriminant validity for a construct is proven, that would

mean that the construct is exclusive in the study concerned and measures the aspects not displayed by other variables in the model. Discriminant validity is widely evaluated using Fornell-Larcker criterion (Fornell & Larcker, 1981). Fornell-Larcker criterion relates the square root of each variable's AVE, whereby in order to established discriminant validity, it must be higher when compared to the maximum correlation with any other variable. This would imply that the variable under study would derive more variation with its accompanying indicators than with other variables.

Table no. 3 shows the application of Fornell-Larcker criterion on our model.

**Table No. 3: Measurement of Discriminant Validity**

Fornell-Larcker Criterion							
Parameter	Agree.	Consc.	Extrav.	KS	EmoSta.	Openn.	WE
Agreebleness	0.99						
Conscientiousness	0.03	<b>0.99</b>					
Extraversion	0.01	0.00	<b>0.99</b>				
Knowledge Sharing	0.34	0.54	0.27	<b>0.58</b>			
Emotional Stability	0.01	0.01	0.00	0.29	<b>0.98</b>		
Openness	0.04	-0.04	0.28	0.11	0.02	<b>0.91</b>	
Work Engagement	0.10	0.27	0.12	0.43	0.55	0.05	<b>0.76</b>

In table no. 3, the square roots of the reflective variable's Average Variance Extracted are on the diagonal and the correlations among the variables in the lower left portion. For example, the reflective construct 'Knowledge Sharing' has a value of 0.58 for the square root of its AVE, which needs to be compared with all correlation values in the row of 'Work Engagement'. Accordingly, all of our constructs meet Fornell-Larcker criterion requirements and discriminant validity is established.

***Assessment of the significance and relevance of the structural model relationships using Total Effects***

Using partial least square algorithm of SEM, path coefficients, or the approximations are generated for the relationships proposed in the structural model. The values of such path coefficients vary between +1 and -1. As the value approaches closer to +1, it signifies a significantly (most of the times) positive relationships between two variables observed. Vice-versa is true for negative values approaching -1. Weak relationships are usually associated with values closer to zero, which are in almost the cases, non-significant. The actual decision regarding the significance of the path coefficient is contingent upon its standard error which is generated using "bootstrapping". Standard error values obtained using bootstrapping permits evaluating the empirical 't' value.

If the 't' value is greater than the threshold value, we can conclude that at certain probable error, the path coefficient is significant. Generally used threshold values for two tailed tests are 1.65 which reflects a level of significance at 10%, 1.96 which reflects a level of significance at 5%, and 2.57 which reflects a level of significance at 1%.

In a complex structural model like ours, an endogenous construct may be explained by several constructs indirectly. Hence, to get a complete understanding of the structural model, it is important to know the relevance and significance of the relationships between different exogenous constructs and endogenous constructs, which is explained by the Total Effect of a particular exogenous construct on target endogenous construct. Total Effect is the aggregate of the "direct effect" and all "indirect effects" linking two constructs. PLS uses the bootstrapping methodology (Efron & Tibshirani, 1986) in order to assess the standard errors, which evaluates the significance of the structural coefficients.

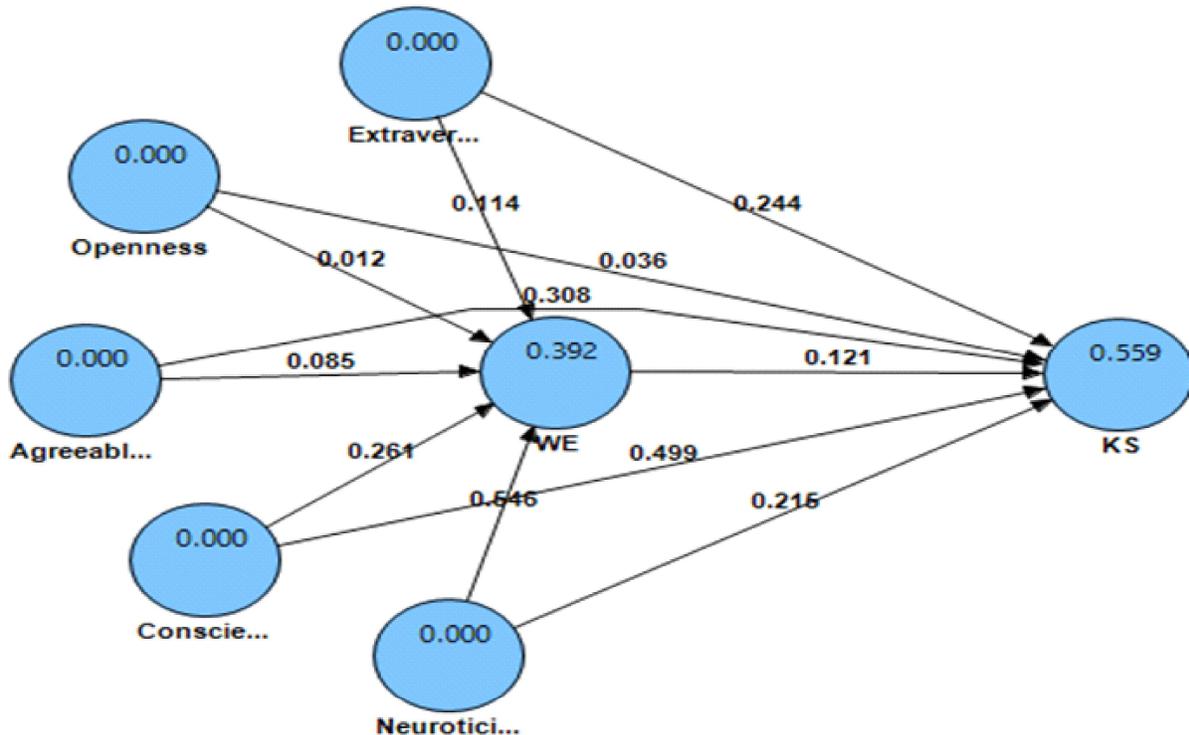
Table no. 4 displays the Total Effects and their significance (at 5% level) for each exogenous construct on each endogenous construct.

**Table No. 4: Total Effects Displaying the Significance Levels for Different Constructs**

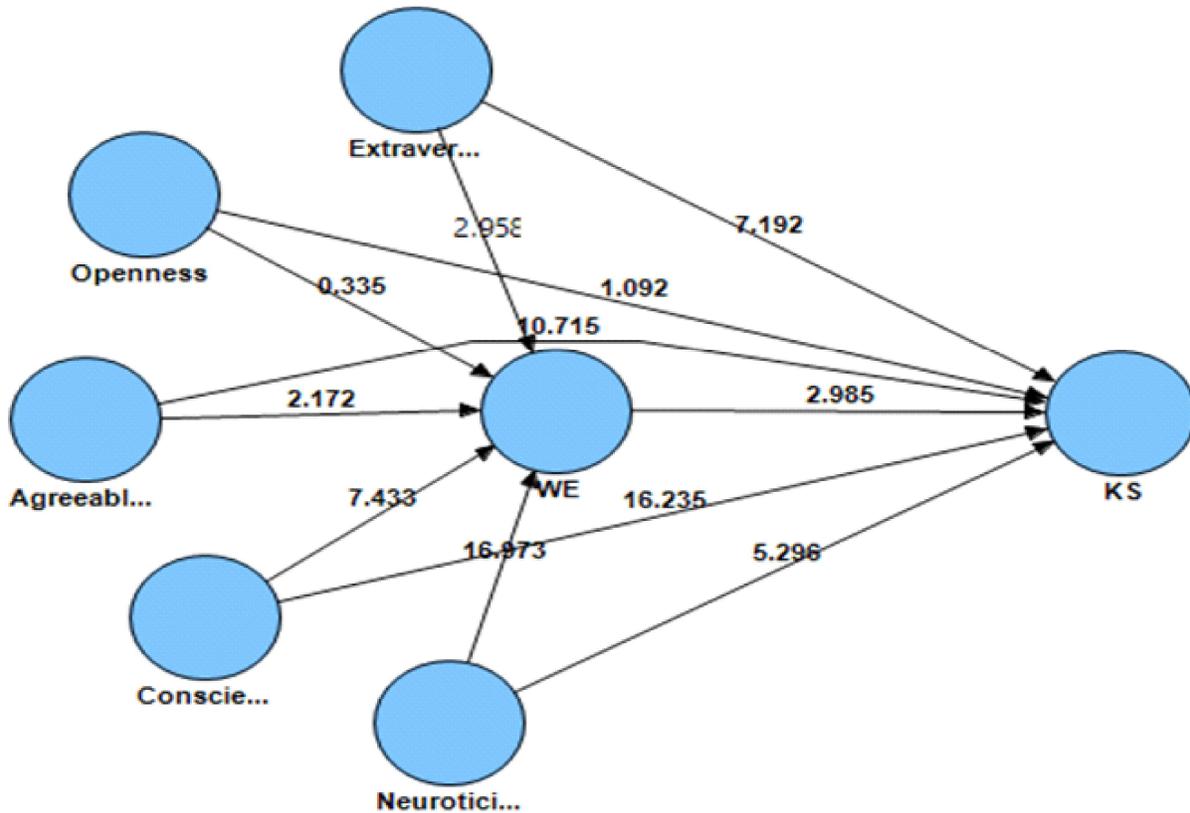
Parameter	Path Coefficients	t values	Sig. Levels
Agreeableness -> KS	0.32	11.14	***
Agreeableness -> WE	0.09	2.17	***
Conscientiousness -> KS	0.53	18.59	***
Conscientiousness -> WE	0.26	7.43	***
Extraversion -> KS	0.26	7.57	***
Extraversion -> WE	0.11	2.96	***
Neuroticism -> KS	0.28	8.11	***
Neuroticism -> WE	0.55	16.97	NS
Openness -> KS	0.04	1.15	NS
Openness -> WE	0.01	0.33	NS
WE -> KS	0.12	2.99	***

Note: NS = not significant; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .

Figure no. 2 shows the relevance of relationships of structural model, while figure no. 3 shows the significance of such relationships by displaying the respective 't' values.



**Figure No. 2: Coefficients for Interrelationship between Personality, Work Engagement, and Knowledge Sharing**



**Figure No. 3: Significance of coefficients for interrelationship between Personality, Work Engagement, and Knowledge Sharing**

From table no. 4, it is evident that among the Big Five Personality Traits, conscientiousness, agreeableness, extraversion, and neuroticism were found to have ‘significant’ total effect on Work Engagement (0.26, 0.09, 0.11, 0.55 respectively). This partly supports our first hypothesis (H1). All the variables (i.e. Big Five Personality Traits and Work Engagement) had a significant total effect on knowledge sharing except ‘openness to experience’ facet of Big Five Personality Traits. This supports our second hypothesis (H2). Conscientiousness was found to have highest total effect on Knowledge Sharing (0.53) followed by agreeableness (0.32).

The results of Coefficients of determination ( $R^2$ ), representing the exogenous latent variables collective impact on the endogenous latent variable, are presented in Table no. 5.  $R^2$  is a measure which suggests the predictability of the constructs involved in a model. It is calculated as the squared correlation among the definite values and the projected values of a particular endogenous construct.

**Table No. 5: Measurement of Coefficients of Determination ( $R^2$ )**

Constructs	R Square
KS	0.56
WE	0.39

The results presented in table no. 5 for  $R^2$  values show that  $R^2$  of Knowledge Sharing is moderate-to-substantial, on the other hand, the  $R^2$  of Work Engagement is moderate-to-weak.

**Importance-Performance Matrix Analysis**

Importance Performance Matrix Analysis (IPMA) is a technique used in PLS-SEM, which utilizes latent variable scores, and relates the total effects (importance) of the structural model with the mean values of the latent variable scores (performance) for a particular dependent variable, thus representing the variables which require managerial consideration (Hair, Hult, Ringle, & Sarstedt, 2013). Table no. 6 and figure no. 4 show the result of IPMA analysis.

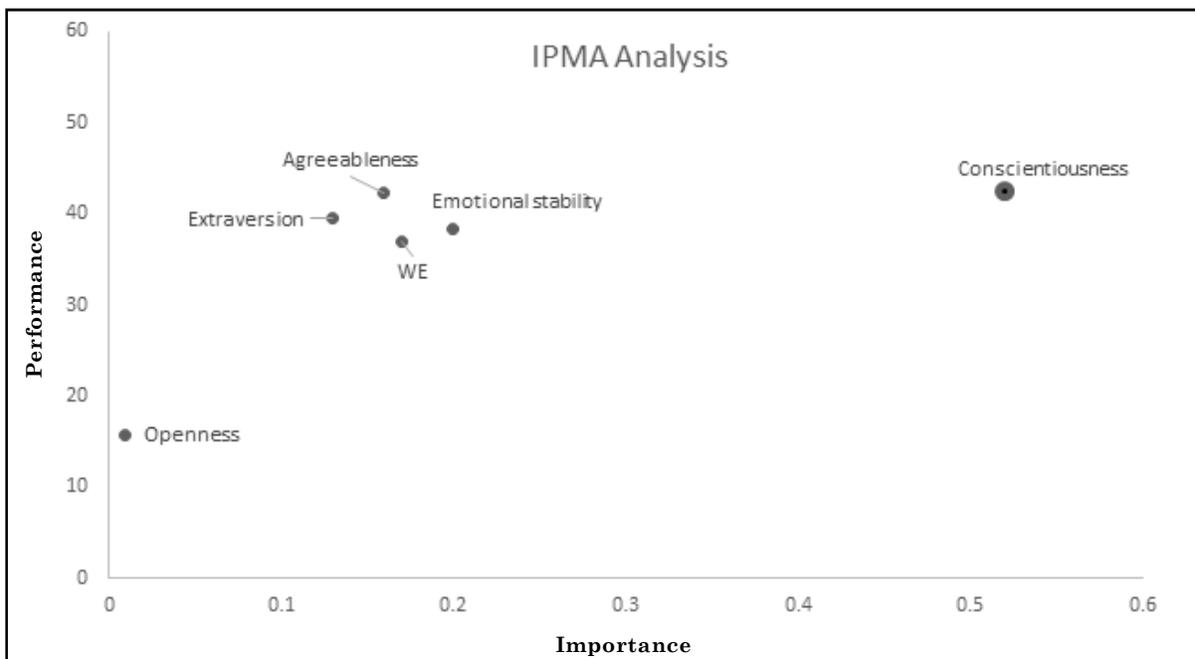
**Table No. 6: Index Values and Total Effects for the IPMA of Knowledge Sharing**

Parameter	Importance (total effects)	Performance
Agreeableness	0.16	42.32
Conscientiousness	0.52	42.55
Extraversion	0.13	39.45
Emotional stability	0.20	38.38
Openness	0.010	15.73
WE	0.17	36.90

Results of IPMA analysis, from the table no. 6 and figure no. 4, shows that conscientiousness is the most important factor among the Big Five, while Work Engagement was also found second most important factor in explaining the Knowledge Sharing, however its performance was substandard compared to other variables considered in our study.

**Mediation analysis and Hypotheses Testing**

Mediation exemplifies a condition where a “mediator” construct absorbs the impact of an exogenous variable on an endogenous variable (Baron & Kenny, 1986). In this research, we consider Work Engagement to be the mediator of the relation between Big Five Personality Traits and Knowledge Sharing.



**Figure No. 4: Graphical Presentation of IPMA Analysis**

Mediation results are represented in table no. 7, for those paths for which the significant direct effect conditions (without mediator) have been met. Such condition was not qualified for the direct effects of ‘openness to experience’ on Knowledge Sharing without Work Engagement as the mediator. Hence, these paths were removed from our mediation examination.

**Work Engagement as a Mediator: Interpretation of Mediation Results at 5% Significance Level**

Mediation results from table no. 7 show that the relationship between three (conscientiousness, extraversion, and neuroticism) of the Big Five Personality Traits and Knowledge Sharing (VAF = 0.12, 0.05, and 0.17 respectively) were mediated by Work Engagement, which partly supports H3.

**Table No. 7: Significance analysis of Mediation**

Path	Path coefficient to WE	Path coefficient of WE to KS	Total effect	t value	Sig	VAF
Agreeableness>WE>KS	0.02	0.07	0.23	0.13	NS	-
Conscientiousness>WE>KS	0.32	0.07	0.17	2.27	**	0.12
Extraversion>WE>KS	0.16	0.05	0.25	2.31	**	0.05
Emotional stability>WE>KS	0.74	0.05	0.28	2.23	**	0.17
Openness>WE>KS	0.05	0.05	0.12	1.47	NS	-

\*\*p < .05. \*\*\*p<0.01

**Discussion**

The aim of this study was to analyze the association between important interpersonal psychological factors with Knowledge Sharing behaviors in organizations.

Among Big Five Personality, neuroticism and conscientiousness were found to be dominant in explaining the Knowledge Sharing in organizations. This result is in lines with Cabrera et al., (2006) and Kim et al. (2009). Managerial implications would suggest implementing such results in the personality tests conducted during the hiring process. Training and counseling may be provided at the job regarding effective handling of the stress and work burden should be effectively distributed so as not to cause nervousness and anxiety resulting from the work.

Work Engagement was shown to moderately explain the Knowledge Sharing behaviors, which is in lines with the similar results by Chen & Hsieh (2015). Such results are however, in contrast with Akhtar et al., (2015) and Agarwal (2014). Work Engagement was found to be a mediator of the relationship between three of the Big Five Personality Traits (conscientiousness, extraversion, and neuroticism) and knowledge sharing. Neuroticism and conscientiousness were found to be the most significant predictors of Work Engagement among the Big Five Personality Traits.

IPMA analysis suggests that even though Work Engagement was one of the most important factors in explaining the knowledge sharing behaviors, its performance was one of the lowest. This has implications for the management who should find and implement ways in order to make the employees more engaged. Such techniques may involve motivational factors such as rewards and incentives, and implicit rewards such as participation in management, organizing quality circles, giving varied role (role diversity), promotions, transfers, etc.

**References**

Agarwal, U. (2014). Linking justice, trust and innovative work behaviour to work engagement. *Personnel Review*, 43(1), 41-73.

Agyemang, F. G., Dzandu, M. D., & Boateng, H. (2016). Knowledge sharing among teachers: The role of the Big Five Personality traits. *VINE Journal of Information and Knowledge Management Systems*, 46(1), 64-84.

- Akhtar, R., Boustani, L., Tsivrikos, D., & Chamorro-Premuzic, T. (2015). The engageable personality: Personality and trait EI as predictors of work engagement. *Personality and Individual Differences, 73*, 44-49. Retrieved from [http://www.mihantarjomah.com/wp-content/uploads/2014/12/The\\_engageable\\_personality\\_\\_Personality\\_and\\_trait\\_EI\\_as\\_predictors\\_of\\_work\\_.pdf](http://www.mihantarjomah.com/wp-content/uploads/2014/12/The_engageable_personality__Personality_and_trait_EI_as_predictors_of_work_.pdf).
- Ardichvill, A., Page, V., & Wentling, T. (2003). Motivation and barriers to participation in virtual knowledge-sharing communities of practice. *Journal of Knowledge Management, 7*(1), 64-77.
- Argote, L., Gruenfeld, D., & Naquin, C. (2001). Group learning in organizations', in M.E. Turner (ed.) *Groups at work: Theory and research*, 369-411. Mahwah, NJ: Erlbaum.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.169.4836&rep=rep1&type=pdf>.
- Bock, G. W., Zmud, R. W., Kim, Y. G., & Lee, J. N. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS Quarterly, 29*(1), 87-111.
- Bordia, P., Irmer, B. E., & Abusah, D. (2006). Differences in sharing knowledge interpersonally and via databases: The role of evaluation apprehension and perceived benefits. *European Journal of Work and Organizational Psychology, 15*(3), 262-280.
- Cabrera, A., & Cabrera, E. F. (2002). Knowledge-sharing dilemmas, organization studies. *23*(5), 687-710.
- Cabrera, A., Collins, W.C., & Salgado, J.F. (2006). Determinants of individual engagement in knowledge sharing. *International Journal of Human Resource Management, 17*(2), 245-264.
- Chen, C. A., & Hsieh, C. W. (2015). Knowledge sharing motivation in the public sector: the role of public service motivation. *International Review of Administrative Sciences, 81*(4), 812-832.
- Chen, Z. J., Zhang, X., & Vogel, D. (2011). Exploring the underlying processes between conflict and knowledge sharing: A work engagement perspective. *Journal of Applied Social Psychology, 41*(5), 1005-1033.
- Chong, C. W., Teh, P. L., & Tan, B. C. (2014). Knowledge sharing among Malaysian universities' students: Do personality traits, class room and technological factors matter? *Educational Studies, 40*(1), 1-25.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334.
- Cummings, J. N. (2004). Work groups, structural diversity, and knowledge sharing in a global organization, *Management Science, 50*(3), 352-364.
- Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Boston, MA: Harvard Business School Press.
- Efron, B., & Tibshirani, R. (1986). Bootstrap methods for standard errors, confidence intervals, and other measures of statistical accuracy. *Statistical Science, 54-75*. Retrieved from <http://matthieuchemin-research.mcgill.ca/ECON742/paper/efron.pdf>, Accessed on January 7, 2017.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.
- Goldberg, L. R. (1990). An alternative description of personality: The big five factor structure. *Journal of Personality and Social Psychology, 59*(6), 1216-29.
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in personality, 37*(6), 504-528.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2013). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage Publications Inc 2<sup>nd</sup> edition.
- Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal, 20*(2), 195-204.
- Inceoglu, I., & Warr, P. (2011). Personality and job engagement. *Journal of Personnel Psychology*. Retrieved from [https://www.sheffield.ac.uk/polopoly\\_fs/1.316539!/file/Warr\\_JPP\\_Personality\\_and\\_Engagement\\_pdf](https://www.sheffield.ac.uk/polopoly_fs/1.316539!/file/Warr_JPP_Personality_and_Engagement_pdf), Accessed on February 8, 2017.
- Kim, H. J., Shin, K. H., & Swanger, N. (2009). Burnout and engagement: A comparative analysis using the big five personality dimensions. *International Journal of Hospitality Management, 28*(1), 96-104.
- Kline, T. J. (1999). The team player inventory: Reliability and validity of a measure of predisposition toward organizational team-working environments. *Journal for Specialists in Group Work, 24*(1), 102-112.

- Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities and the replication of technology. *Organization Science*, 3(1), 383-398.
- Landers, R. N., & Lounsbury, J. W. (2006). An investigation of big five and narrow personality traits in relation to internet use. *Computers in Human Behavior*, 22(2), 283-93.
- Levin, D. Z. and Cross, R. (2004). The strength of weak ties you can trust: The mediating role of trust in effective knowledge transfer, *Management Science* 50(11), 1477-90.
- Lin, C. P. (2007). To share or not to share: Modeling tacit knowledge sharing, its mediators and antecedents. *Journal of Business Ethics*, 70(4), 411-428.
- Lin, H. F. (2007a). Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions. *Journal of Information Science*. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.887.3200&rep=rep1&type=pdf>.
- Lin, H. F. (2007b). Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions. *Journal of Information Science*, 33(2), 135-149.
- Mooradian, T., Renzl, B., & Matzler, K. (2006). Who trusts? Personality, trust and knowledge sharing. *Management learning*, 37(4), 523-540.
- Mutsuddi, I. (2016). Employee retention and engagement practices in the healthcare sector, A study on medica super-specialty hospital, Kolkata. *Delhi Business Review*, 17(1), 65-78.
- Nonaka, I., & Takeuchi, H. (1995). The knowledge creating company: How Japanese companies create the dynamics of innovation. New York: Oxford University Press.
- Reagans, R., & McEvily, B. (2003). Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, 48(2), 240-267.
- Ringle, Christian M., Wende, Sven, & Will, Alexander. (2005). Smart PLS 2.0. M3. Hamburg: Smart PLS. Retrieved from <http://www.smartpls.com>, Accessed on December 21, 2016.
- Schaufeli, W. B., & Bakker, A. B. (2003). UWES-Utrecht work engagement scale: Test manual. Unpublished manuscript. Department of Psychology, Utrecht University.
- Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: a two sample confirmatory factor analytic approach, *Journal of Happiness Studies*, 3, 71-92. Retrieved from <https://pdfs.semanticscholar.org/1302/b13b5f59912e4f369ecd1a18d6dde644a8e3.pdf>, Accessed on March 6, 2017.
- Sinha, S., Singh, A. K., Gupta, N., & Dutt, R. (2010). Impact of Work Culture on Motivation Level of Employees in Selected Public Sector Companies in India, *Delhi Business Review*, 11(1), 43-54
- Singh, A. K., & Sharma, V. (2008a). Key attributes of successful knowledge management: An empirical study in telecom and software sector. Retrieved from <https://www.inderscienceonline.com/doi/abs/10.1504/IJBIS.2011.037298>, Accessed on March 6, 2016.
- Singh, A. K., & Sharma, V. (2008b). A study on implications of culture driven knowledge management on employee satisfaction in indian telecom sector, In Aktan, C. C, & Dalbay, O. (Eds.), *Management and Behaviour in Organizations*. Paper presented at 1<sup>st</sup> International Conference on Social Sciences Vol. 2 (pp. 15-28) : Organized by Social Sciences Research Society on August 21-22, 2008, Izmir, Turkey. ISBN: 978-605-5741-16-3.
- Singh, A. K., & Sharma, V. (2008c). Knowledge management and organisational learning: An empirical study of its implications on employee satisfaction in telecom sector. In *Corporate Strategies and Innovations in the Emerging Global Economy*, Paper presented at National Conference on Management -2007, GGS Indraprastha University, New Delhi, November 23-24 (pp. 302-318). Wisdom Publications, First Edition.
- Singh, A. K., & Sharma, V. (2008d). Antecedents of knowledge management and its impact on employee satisfaction: A study on indian telecom sector, In Sahay, B. S., Ranjan, J., Thakur, R. R., Nicholas, S. (Eds.), *Redefining Business Horizons*. Paper presented at the International Conference on Innovation and Redefining Business (IIRB) -2008, IMT, Ghaziabad, India, December, 2008 (pp. 18-19). McMillan Advance Research Series, McMillan Publications, First Edition (pp. 570-581).
- Singh, A. K., & Sharma, V. (2011a). Key attributes of successful knowledge management: An empirical study in telecommunication and software industries, *International Journal Business Information Systems*, 7(1), 78-92.
- Singh, A. K., & Sharma, V. (2011b). Knowledge management antecedents and its impact on employee satisfaction: A study on indian telecommunication industries, *The Learning Organization, Emerald Journal*, 18(2), 115-130.

- Srivastava, S. (2003). Organizational culture and work related values. *Delhi Business Review*, 4(1). Retrieved from [http://www.dbr.shtr.org/v\\_4n1/v4n1g.pdf](http://www.dbr.shtr.org/v_4n1/v4n1g.pdf), Accessed on January 3, 2017.
- Tang, P. M., Bavik, Y. L., Chen, Y. F., & Tjosvold, D. (2015). Linking ethical leadership to knowledge sharing and knowledge hiding: The mediating role of psychological engagement. *International Proceedings of Economics Development and Research*, 84, 71. Retrieved from <http://www.ipedr.com/vol84/010-E00013.pdf>, Accessed on March 7, 2017.
- Voelpel, S. C., Dous, M., & Davenport, T. H. (2005). Five steps to creating a global knowledge-sharing system: Siemens' share net. *Academy of Management Executive*, 19(2), 9-23.
- Wang, S., & Noe, R. A. (2010). Knowledge sharing: A review and directions for future research. *Human Resource Management Review*, 20(2), 115-131.
- Wasko, M. M., & Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quarterly*, 29(1), 35-57.
- Wefald, A., Reichard, R., & Serrano, S. (2011). Fitting engagement into a nomological network: The relationship of engagement to leadership and personality. *Journal of Leadership & Organizational Studies*, 18(4), 522-537.
- Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Work engagement and financial returns: A diary study on the role of job and personal resources. *Journal of Occupational and Organizational Psychology*, 82(1), 183-200.
- Yi, J. (2009). A measure of knowledge sharing behavior: scale development and validation. *Knowledge Management Research & Practice*, 7(1), 65-81.
- Zhang, L. F., & Huang, J. (2001). Thinking styles and the five-factor model of personality. *European Journal of Personality*, 15(6), 465-76.