

# Impact of Big Five Personality Traits on Knowledge Sharing

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**Abstract—** This paper attempts to investigate how big five personality traits affect knowledge sharing in ICT companies of Iran. In this regard, several ICT companies in Tehran were studied. 355 questionnaires were gathered. At the end the result showed that extraversion, conscientiousness, agreeableness, and openness to experience have significant and positive impact while neuroticism has significant and negative impact on knowledge sharing.

**Keywords—** Extraversion, Agreeableness, Openness to experience, Conscientiousness, Neuroticism, knowledge sharing, ICT

## I. INTRODUCTION

There are many evidences that show that knowledge sharing can increase innovation in an organization (e.g. Manafi, & Subramaniam, 2015a,b; Akram et al., 2020). By SECI model (Nonaka and Takeuchi, 1995), knowledge sharing results knowledge creation. Hence, improving the level of knowledge sharing can be useful for every company and organization. Several researchers (e.g. Nguyen & Prentice, 2020; Manafi, & Subramaniam, 2015a,b; Goh & Sndhu, 2014) have characterized knowledge sharing by two dimensions including, knowledge collecting and knowledge donating.

By considering the overlap of knowledge sharing and personal behavior, we need to know which personal factors are affecting knowledge sharing. In other words, the role of big five personality on knowledge sharing behavior make some ambiguities. There are many research about big five personality traits and their effects (Chaturvedi, et al., 2020; Buecker et al., 2020; Holmström, 2015; Martin et al., 2007; Komarraju & Karau, 2005). The big personality is defined as extraversion, agreeableness, openness to experience, conscientiousness, and neuroticism. On the other hands, there are many ICT companies in Iran that their performances are really dependent to the level of knowledge and innovation. These companies can improve their level of knowledge and innovation by knowledge sharing. Therefore, this study aims to find how big five personality traits can affect knowledge sharing in ICT companies of Iran.

## II. Literature Review and Hypotheses Development

There are many researches that show that knowledge sharing is very important for an organization. It is consistent with resource-based

view (Nonaka and Takeuchi, 1995). According to Barney human capital can be exploited as source toward sustainable competitive advantage, because the existing knowledge of human capital is rare, non-imitable, and valuable. Table1 shows some research regarding knowledge sharing.

**Table1: Related research to Knowledge Sharing**

Independent variables	Dependant variables	References
Human resources practices Transformational leadership Organizational justice Organizational culture Diversity...	Knowledge sharing	Cummings, (2004); Xue et al., (2011); Manafi,& Subramaniam (2015a,b); Bradshaw et al., (2015); Tamtam & Rao (2017); Zhang,(2018); Sung & Choi (2019); Akram et al.,(2020)
Knowledge sharing	Innovation; Knowledge creation; Financial performance; Organizational performance...	Kamaşak & Bulutlar (2010); Manafi,& Subramaniam (2015a); Castaneda & Cuellar (2020); Obeidat & Tarhini (2016); Nguyen & Ha (2020)

As shown in Table.1, some research are showing that which factors can affect knowledge sharing while other research concentrating the outcomes of knowledge sharing. In other words, knowledge sharing can be considered as intervening variables. Table.2 demonstrates shows the definitions of personality traits based on the different research. In other words, each trait can be characterized by different dimensions which they are shown in the Table2.

**Table2: Big five personality traits**

<b>Extraversion</b>	Sociability Assertiveness Talkativeness Excitability
<b>Agreeableness</b>	Affection Trust Kindness Altruism, Other prosocial behavior
<b>Openness to experience</b>	Like to try new things Impressed by novelty Seeking out new things Open to other people suggestion
<b>Conscientiousness</b>	Organized and principled Responsible Forward-thinking Persistent Goal oriented

<b>Neuroticism</b>	Anxiety Angry-hostility Self- conscientious, Impulsiveness Vulnerability
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There are various researchers (Cobb-Clark & Schurer, 2012; Agyemang et al., 2016; Lotfi et al., 2016; Arpacı & Unver, 2020; Mahmoud et al., 2020 ) who have worked on big five personality traits and their outcomes. These research usually are in the area of psychology, management, or other social sciences. By above discussion, we can develop the following hypotheses:

- H1: Extraversion affects knowledge sharing significantly and positively
- H2: Agreeableness affects knowledge sharing significantly and positively
- H3: Openness to experience affects knowledge sharing significantly and positively
- H4: Conscientiousness affects knowledge sharing significantly and positively
- H5: Neuroticism affects knowledge sharing significantly and negatively

### III. Data Analysis and Results

This research applied quantitative method in order to find the relationship between big five personality traits and knowledge sharing. The population of this study was all employees who are working in the ICT companies of Tehran. They are programmer, technicians, and research managers/supervisors. 400 of them were chosen randomly and they were asked to fill up the questionnaire. the questionnaire of this study had 2 parts. The first part was about demographics information of respondents while the second part was to measure the variable of this study including, extraversion, agreeableness, openness to experience, conscientiousness, neuroticism, and knowledge sharing. The items of big five personality traits were adapted based on the mentioned dimensions of the Table2.

Knowledge sharing was measured by two dimensions such as collecting and donation, and the items were adapted from the research of Manafi and Subramaniam [2015a]. Table3 shows the items of measuring knowledge sharing.

Table3: Items of Knowledge Sharing

Knowledge Sharing	
<b>Knowledge collecting</b>	I am confident of my ability to access knowledge that the others in my learning environment would consider valuable I have the expertise required to acquire valuable knowledge from my learning environment Most of my colleagues can provide me with valuable knowledge
<b>Knowledge Donating</b>	I share my knowledge with my colleagues when I have learnt something new. My colleagues share with me when they have learnt new things Knowledge sharing amongst colleagues is considered normal in my organization

The research was carried out during Sep 2020 to 2021July. Out of 400 distributed questionnaires, 355 of them were usable, so all analyses were done on 355 data.

The results of reliability test were acceptable according to the Nunally (1978) for each variable because all values were greater than .7. To measure the relationship between variables of this study, Pearson correlation test was applied. The value of correlation test varies between -1 and 1. Table 4 shows the results of Pearson correlation test.

Table 4: Results of Pearson Correlation Test

	1	2	3	4	5	6
1. Knowledge Sharing	1					
2. Extraversion	.443	1				
3. Agreeableness	.402	.177	1			
4. Openness to experience	.271	.154	.234	1		
5. Conscientiousness	.477	.217	.171	.311	1	
6. Neuroticism	-.222	-.112	-.207	-.216	-.032	1

Table.4, the highest estimated relationship with knowledge sharing refers to conscientiousness while the lowest value refers to neuroticism. It should be mentioned that all personality traits have significant relationships with knowledge sharing because all p-values are less than .05. The next analysis was multiple regression analysis. Table4 shows the results of multiple regression analysis.

Table5: Results of Multiple Regression Analysis

R Square = .714 F = 172.54 P-value of ANOVA= .000 Constant= .255					
Impacts	P-value	Unstandardized Coefficient	VIF	Hypothesis	Supported
Extraversion on Knowledge Sharing	.000	.124	1.3	H1	√
Agreeableness on Knowledge Sharing	.001	.145	1.2	H2	√
Openness to experience on Knowledge Sharing	.000	.177	1.1	H3	√
Conscientiousness on Knowledge Sharing	.023	.201	1.77	H4	√
Neuroticism on Knowledge Sharing	.047	-.122	1.55	H5	√

According to the Table5, the estimated value of r square is .714 that 71.4% of variation of knowledge sharing can be accounted by big five personality traits. All p-values are less than .05 that means that each variable has significant impact on knowledge sharing. Except neuroticism, all personality traits have positive impact on knowledge sharing. In other words, for every unit increase in neuroticism, knowledge sharing goes down .122 units. However, the regression equation can be written as follow:

$$\text{Knowledge Sharing} = .255 + .124 \text{ extraversion} + .145 \text{ agreeableness} + .177 \text{ openness} + .201 \text{ conscientiousness} - .122 \text{ neuroticism}$$

#### IV. Conclusion

The results of this study showed that all big five personality traits have significant impacts on knowledge sharing in the ICT companies of Iran. However, all personality traits had positive impacts except neuroticism. In other words, the people with higher level of neuroticism will have fewer tendencies to donate or collect knowledge. The framework of this study can be tested in other scopes and industries. Beside of that big five personality traits has potential to be a good moderator when other variable is affecting knowledge sharing.

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