

How personality traits affect knowledge acquisition sources? An empirical study of Iranian Automobile Company

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Abstract: The focal point of present study is the relation between personality traits and knowledge acquisition sources. The Big Five factors are extraversion, openness, conscientiousness, agreeableness, and neuroticism. The knowledge acquisition sources are internal codified sources, internal non-codified sources, external codified sources and external non-codified sources. A total of 237 members of staff in an automobile company in Iran completed the questionnaires. The results of analysis of variance indicated that except one personality trait (neuroticism) that have a significant relationship with internal codified sources, other personality dimensions tested in the study (extraversion, openness to experience, agreeableness and conscientiousness) don't connected to knowledge acquisition sources. The Implications of these findings and suggestions for future research are also discussed.

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1. Introduction

Knowledge is widely acknowledged as a critical organizational resource (Gupta, 2008; Sveiby, 1997; Davenport & Prusak, 1998). Several scholars agree that part of managing knowledge within the organization is developing processes that acquire knowledge (Cole, 1998; Leonard, 1995; Nonaka and Takeuchi, 1995). Therefore, as Kim and Lee (2010) explained the knowledge acquisition requires a high degree of experience and consonant effort in recognizing and capturing new knowledge.

Employees can acquire knowledge from different sources. They may obtain knowledge through a variety of learning activities within an organization, such as training, internal company newsletter, formal education, experimentation, imitation, asking supervisors, and self-directed learning (Reio & Wiswell, 2000) or some activities without an organization, such as professional communities, personal networks, conferences and trade shows, internet and so on.

It is known in psychology that the measurements of individual traits can be used in the prediction of human behavior (McAdams, 1992). Traits are "dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings and actions" (McCrae & Costa, 1990). Personality will specify the interaction form of individuals and the environment, and indirectly steer their behavior (Hsieh et al., 2011).

The present study investigates which sources employees with different personality traits in an

Iranian automobile company prefer for acquiring their needed information. In discussing the knowledge management process, existing research seldom has integrated both sources of knowledge acquisition and personality. Thus, there is a need for research that explores an integrated model in which different personality traits will result in acquiring knowledge from different sources. The structure of the current article is as follows:

In the second, third and fourth section, we review the related literature on the sources of knowledge acquisition and personality traits. The fifth and sixth sections present the research questions and methodology, and the seventh section includes a report of the findings. The last section presents a discussion of the findings and limitations of our study, as well as suggestions for further research.

2. Sources of knowledge acquisition

Knowledge generally is classified into two categories (Nonaka & Takeuchi, 1995): explicit and tacit knowledge. Explicit knowledge refers to knowledge that is codified as signs and symbols, or to formulated information that is conveyed by formal systems. Books, manuals, and codes of practice are popular forms of explicit knowledge. On the other hand, it is more difficult to share implicit or tacit knowledge only through codified signs and symbols. Nonaka and Takeuchi (1995) explained "tacit knowledge is personal, context-specific and hard to formalize and to communicate among people. It encompasses two dimensions: cognitive elements,

including personal beliefs, values and mental models, and technical elements including technical skills and know-how” (In line with Nonaka and Konno, 1998).

As Liu and Liu (2008) believe it is clear that individuals may rely on different learning channels to

obtain explicit and tacit knowledge. There are few empirical studies to verify the previous theoretical arguments about sources of knowledge acquisition. In the following table, some classification of knowledge acquisition sources was summarized.

Table - Knowledge acquisition sources

| Year | Author(s) | Knowledge acquisition sources |
|------|------------------------|---|
| 2000 | Rulke et al. | internal relational, internal non-relational and external channels |
| 1993 | Choo | external personal sources, external impersonal sources, internal personal sources and internal impersonal sources |
| 2006 | Assimakopoulos and Yan | Technical books and online searching, Local community of practice, Personal networks and Internet software technology forums. |
| 2010 | Wilson et al | combination of formal training, informal learning opportunities, and practical experiences |
| 2008 | Svetina and Prodan | internal, local, national and international knowledge sources |
| 2010 | Kim et al. | dyadic knowledge sources, published knowledge sources, and group knowledge sources |
| 2008 | Liu and Liu | internal codified sources, internal non-codified sources, external codified sources and external non-codified sources |

Although the researchers haven't achieved to a unity categorization of knowledge acquisition sources, but it is clear that knowledge acquisition sources are within an organization or without of it. Also this knowledge is codified or non-codified. In this study using Liu and Liu classification of knowledge acquisition sources (2008), knowledge acquisition sources have divided in four groups: internal codified sources, internal non-codified sources, external codified sources and external non-codified sources.

As Choo (1993) expressed “A long line of information needs and uses studies in library and information science has examined the use of information sources by identified user groups, especially scientists and technologists. Many of these studies conclude that the perceived accessibility of an information source is a strong predictor of its use. A number of classic studies have in fact shown that the effect of accessibility is much more important than the perceived quality of the source”. After comparing thirteen science user studies, Skelton (1973) resulted that mostly scientists prefer to gain information through personal recommendations, abstracts/indexes, chance and citations. Allen's (1977) study showed personal contacts and discussions between engineers and source proximity and accessibility are determinant factors on information flow among engineers and scientists in an R&D organization. As Allen (1977) explained “the information needs and uses studies collectively suggest two broad tendencies: users prefer face-to-face communications with personal sources, and they tend to use sources that are accessible or close at

hand”. The results of Taylor (1986) and Katzer and Fletcher (1992) research showed managers decide mostly based on evaluated aggregated data; they don't like an abundance of irrelevant information; they extremely use verbal media; and they have an urgent need for external information.

A large number of personal, situational and task factors may affect the selection and use of information sources. In the present study, we concentrate upon the effects of the employee's personality. Should we expect staff employees with different personality to show the same preferences for information sources?

3. Personality traits

Different researchers (Gupta, 2008; Peabody & Goldberg, 1989; Costa & McCrae, 1992; Digman, 1990; Barrick & Mount, 1991; Borkeneau, 1988; Hogan, 1983; Mount & Barrick, 1998) have considered the five factor model (FFM) of personality as a valid personality framework. The five factors are extraversion, agreeableness, conscientiousness, openness, and neuroticism.

Neuroticism: “Neuroticism is a measure of affect and emotional control. Low levels of neuroticism indicate emotional stability whereas high levels of neuroticism increase the likelihood of experiencing negative emotions” (Howard & Howard, 1995). [Ford et al.\(2001\)](#) expressed that negative emotionality may cause to a barrier to successful information retrieval. He found that “this influence seems related to personality inclination as well as to temporary states of anxiety”. But, maybe a given level of arousal, even related to negative emotions, it is possible in fact

promote concentration also on information seeking tasks (Crozier, 1997).

Extraversion-introversion: “The extraversion-introversion dimension contrasts an outgoing character with a withdrawn nature. Extraverts tend to be more physically and verbally active whereas introverts are independent, reserved, steady and like being alone. The person in the middle of the dimension likes a mix between social situations and solitude” (Howard & Howard, 1995). Gupta study (2008) of students showed that extraverted students have an energetic, enthusiastic and daredevil character, which was reflected in their information seeking. These active and outgoing students wanted to find much information without being very systematic in their quest for it. Onwuegbuzie & Jiao (1998) resulted the information sources of outgoing students often are teachers, supervisors and friends.

Openness to experience: “Openness to experience is a measure of depth, breadth and variability in a person's imagination and urge for experiences. The factor relates to intellect, openness to new ideas, cultural interests, educational aptitude and creativity as well as an interest in varied sensory and cognitive experiences” (Howard & Howard, 1995). Openness to experience is relevant to wide information seeking, chancy information acquisition, preference of thought-provoking documents instead of documents which confirmed previous ideas, critical information judgment and endeavor in information seeking (Matzler et al., 2008; Erdelez, 1997).

Agreeableness: Agreeable people can be described as altruistic, good-natured, gentle, forgiving, courteous, kind, cheerful, enthusiastic to help others, sympathetic, warm and they seek cooperation rather than competition (Costa & McCrae, 1992; Barrick & Mount, 1991; Liao & Chuang, 2004). Some authors (Graziano, 1994; Johnson & Krueger, 2004) believe agreeableness is the least heritable among the Big Five traits and it mostly resulted of experience and environment.

Conscientiousness: “Conscientiousness is a measure of goal-directed behavior and amount of control over impulses. The focused person concentrates on a limited number of goals but strives hard to reach them, while the flexible person is more impulsive and easier to persuade from one task to another” (Howard & Howard, 1995). [Costa & McCrae \(1992\)](#) expressed the more conscientious a person is, the more dutiful, competent, responsible, orderly, and thorough. Conscientiousness is related to precedence of thought-provoking documents instead of documents which corroborated previous ideas and use of essay in information seeking.

4. Personality and sources of knowledge acquisition

Personality differences may affect the selection and use of information sources (Heinström, 2003). In the following, the results of some previous researches have mentioned.

[Borgman \(1989\)](#) studies showed personality traits have been acknowledged as influential on database searches and an impressive factor to consider in the design of IR systems. As shown by [Bellardo \(1985\)](#), “although long experience in database searching usually reduce the influence of personality, shyness and weak self-esteem may initially have a negative impact on search outcome”. [Nahl \(1996\)](#) believes that the assessment and prospect of one's own ability is often more influential on performance than the actual skills one encompasses. If searchers suppose it maybe that they will lose the search affairs, this influences their further actions. They might give up the search too soon, fail to take notes or key inexactly. As [Miculincer \(1997\)](#) explained secure persons have a positive and constructive attitude towards information and protect a large recall. The more secure people are, the more energetically they search information. They are more admitting of new information and ready to possible changes. They have a flexible mind and easily conform to a changing world. Finley & Finley (1996) noted the persons who have a tendency to novelty; they have a positive attitude towards and usage of the Internet. Insecure persons often don't possess enough flexibility in coping with unpredictability, ambiguity and disorder in the search systems. Their tendency to end the research process as soon as possible causes to premature decisions based on insufficient information. As Miculincer (1997) discussed “this insecurity could be linked to neuroticism. Nervousness can indeed be a barrier to information”. Borgers et al.' study has shown that nervousness prevent for searching information for 20% of cancer patients, who would have been in need of information. Palmer (1991) studied the influence of personality on the information-seeking behavior of scientists. She found that innovators usually used many different sources of information and sought information widely, enthusiastically. Adaptors hardly tolerated social pressure and authority, prone to conformity and suspected their capabilities. They were in addition more systematic, methodical and controlled in their information searching. Workshops, conferences, and Web sites are basic information sources for innovators in their effort for the latest break-through (Jacobsen, 1998). Heinström (2003) examined the relation between personality and information seeking among university students. The

results of his study were different. He explained curious and interested students, with confidence in their capability, welcome new information content. Conservative students preferred standard written documents and overviews, presumably taught and recommended by teachers and supervisors. They didn't enthusiastic to use of more challenging and explorative information sources, such as mass-media or internet sources. Open students use many different sources of information and use much attempt in their information seeking. He result "open students hunt sources of inspiration in a wide range of sources. Both the characteristics and the search pattern of open students could be compared to innovators". Heinström study (2003) also showed a relationship between critical analysis of information and competitiveness. The conscientious students work hard in order to retrieve useful information and use more effort in their analysis of it, as they preferred documents by reliable authors from famous sources over more easily digested literature. Easygoing students with low levels of conscientiousness often use easy access information sources and use minimum effort and thoroughness. The results of Schmit et al. (1996) and Bergman et al. (2008) researches suggests that personality is only indirectly related to job performance through job knowledge. As such, personality should account for no additional variance in job performance beyond its influence on job knowledge.

5. Research questions

As mentioned the results of some researches in forth section, it seems there are a relationship between personality traits and knowledge acquisition sources. So, this paper explores whether using knowledge acquisition sources can be explained by personality traits.

The specific research questions were the following:

- How does neuroticism influence knowledge acquisition sources?
- How does extraversion influence knowledge acquisition sources?
- How does openness to experience influence knowledge acquisition sources?
- How does agreeableness influence knowledge acquisition sources?
- How does conscientiousness influence knowledge acquisition sources?

6. Study

6.1 Sample

To examine the hypothesized relationship between neuroticism, extroversion, openness to experience, agreeableness, conscientiousness and

knowledge acquisition sources, we gathered data from an automobile company in Iran. There are more than 600 members of staff in the cited company and they have taken part in ten-hour periods of knowledge management. All respondents were full-time employees of the participating organization and volunteered to participate in the study. We pay attention all staff members of organization use the supposed knowledge acquisition sources. A total of 237 employees returned usable questionnaires, which is a response rate of 95%. Anonymity and confidential treatment of the responses were assured. Respondents were requested to provide demographic information as element of the self-report questionnaire, for example, gender, age, education level, and years of work in this organization. Most of the respondents (95%) are 40 years old or younger, and 89% of them are male. 76% of them have worked for the company for more than five years; almost 68% hold a university degree.

6.2 Instruments

Knowledge acquisition- It was measured with 12 items. Respondents were asked to report how frequently they will be involved in various sources related to knowledge acquisition i.e. attending conferences and trade shows, reading internal company newsletter, attending training program, asking supervisors, Internet, discussion with seniors and colleague etc., on five point scale(1-very rarely, 5 – very frequently). These sources divided in four groups: internal codified sources, internal non-codified sources, external codified sources and external non-codified sources. The coefficient alpha for the scale was .72.

Personality- The NEO-Five-Factor Inventory (NEO-FFI) developed by Costa and McCrae (1985) was used in the study. This inventory is a short form of the NEO-Personality Inventory. Each of the five factors was measured using 12 items for a total of 60 items. McCrae and Costa (1989) have verified the existence of five independent personality factors with coefficient alphas of .70 or higher for the items measuring each of the factors. A five-point Likert scale was used ranging from (1) strongly disagree to (5) strongly agree.

6.3 Method

In this study, neuroticism, extraversion, openness to experience, agreeableness and conscientiousness were presented as the group of independent variables while internal codified sources, internal non-codified source, external codified sources, external non-codified sources was treated separately as dependent variables. To explore whether different personalities have any impact on knowledge acquisition sources, one way analysis of variance was performed for knowledge acquisition

sources separately with personality dimension as independent factor and knowledge acquisition sources as dependent factor. Separate ANOVA was performed for each personality dimension. Four personal characteristics were also used as control variables: gender, age, education, and years of working at the corporation.

Results

The results of analysis of variance for knowledge acquisition sources and personality dimension indicate only the impact of neuroticism on internal codified sources was significant ($F=1.861$ and $\text{sig}<0.05$). Persons high on neuroticism reported to be more involved in knowledge acquisition activities of internal codified sources. No statistically significant relationship was found between knowledge acquisition sources and the traits of extraversion, openness, agreeableness and conscientiousness.

Discussion

Although it may seem logical that personality traits would influence on attitude towards knowledge acquisition sources, the present study does not support these predictions. The findings in this study indicate that only one source of knowledge acquisition (internal codified sources) was related to one dimension of personality (neuroticism). So, the main contribution of the paper is to provide empirical evidence about the impact of personality traits on knowledge acquisition sources. The results of this study show that individuals with higher levels of neuroticism have the motive to acquire knowledge from internal codified sources (such as internal formal training and internal company newsletter).

Those high in neuroticism tend to experience disruptive emotions such as guilt, sadness, fear, anger, embarrassment and disgust. Perhaps because negative emotions interfere with compromise, men and women who are highly neurotic are also susceptible to have irrational ideas, to be less capable to control their impulses, and to face more poorly than others with stress. They tend to be high self-monitors and self-conscious. Thus individual's interaction with others influenced by degree of neuroticism (Costa & McCrae, 1992; Gupta, 2008). Moreover, the transfer of codified knowledge within an organization is rather straightforward, and the transfer of codified knowledge can be done easily between large and small groups (Hansen, 1999; Tsai, 2002). So when there are several channels to acquire and search for knowledge within the organization, those who are highly neurotic tend to acquire knowledge from internal codified sources. Hereby, they experience low stress in their workplace. This is

further supported by Gupta (2008) findings, in which when knowledge sharing and acquisition activities are considered to be routine activities, neuroticism dimension doesn't have negative impact on individual involvement in knowledge sharing and acquisition activities; while this dimensions influence behavior more in stressful situations. Also this result is in line with findings of Miculincer (1997), in which students with high levels of neuroticism are more vulnerable to the strain of many conflicting messages and accordingly, prefer less confusing information.

There was no significant difference in knowledge acquisition sources among individuals low or high on extraversion, openness to experience, agreeableness and conscientiousness. This implicates the persons with different personality don't have a unique way of seeking information. This is contrary with Heinström's findings (2003) that find a significant relationship between personality traits and information behavior. To quote Adler and Weiss (1988), Gupta (2008) reported that "personality will have the most impact in weak situations. In strong situations with more defined roles, rules and contingencies, personality should have less impact". The automobile company in present study has definite rules and everybody knows his role and tasks. But somebody in R&D department has some defined authority for innovation and creativity. Maybe this is the reason of non-significant relationship between most personality traits and knowledge acquisition sources. Anyway, future research needs to replicate this study in order to validate these findings.

Conclusion

This study has addressed a significant gap in personality traits and knowledge acquisition literature. In particular, the present study contributes to our knowledge. There are many studies that have examined the role of personality in knowledge sharing and knowledge acquisition behavior (Gupta, 2008; Hsieh et al, 2011; Kim and Lee, 2010; Matzler et al, 2008; Politis, 2004), but none of the studies conducted in the areas of personality traits and knowledge acquisition sources. This research was designed to study that how personality traits affect on knowledge acquisition sources. A survey was administered based on the information obtained in members of staff in an automobile company in Iran. To explore whether different personalities have any impact on knowledge acquisition sources, one way analysis of variance was performed for knowledge acquisition sources separately with personality dimension as independent factor and knowledge acquisition sources as dependent factor. The research

found that only one source of knowledge acquisition (internal codified sources) was related to one dimension of personality (neuroticism).

Given the importance of knowledge acquisition in today's society, it is hoped that the research performed in this study will be useful to other researchers seeking to understand the role of the personality traits in knowledge acquisition behavior among the organizational communities.

Some research limitations may restrict the conclusions drawn from this study, two of which warrant particular discussion. First of all, the small sample size put constrain on the generalize ability of findings to population. Second, this study was conducted in an Iranian automobile company. Since international research will contribute to better understanding of the effects of cited variables, a replication of this study should be performed in other countries with larger sample size.

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