

The Relationships among Personality trait, Perception of Organizational Innovative Climate, and Innovative behavior for the R&D employees of Communications and Internet Industry

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Abstract

This study explored the personality trait, perception of organizational innovative climate, and innovative behavior for the R&D employees of the communication and networking industry in Taiwan. Specifically, the relationships between personality traits and innovative behavior, and the mediating effects of organizational innovative climate are tested. Data from 206 R&D employees from public-traded companies of communication and the Internet industry are collected before a series of hierarchical regression analyses are conducted to test the hypotheses. The results showed that the personality traits of the R&D employees had correlation with the innovative behavior and organizational innovative climate. In addition, the organizational innovative climate of the R&D employees had a significant and positive correlation with innovative behavior. Finally, the perception of organizational innovative climate of the R&D employees had partial mediation effect in the relationship between personality traits and innovative behavior.

Keywords: Personality traits, Organizational innovative climate, Innovative behavior

1. Introduction

The communication and networking industry plays an irreplaceable role in Taiwan. How to fully utilize its existing competitive advantages and constantly

engage in innovation to elevate the competency of the communication and networking industry is an issue that enterprises place huge emphasis on.

Studies discover that personality traits and employee's innovation behavior share connection (Judge & Bono, 2002). When employees possess innovation-benefiting personality traits, they can exercise existing resources to produce maximum effect and develop original techniques and products. On the other hand, Amabile (1996) once indicated that creativity is all that innovations root in. Nevertheless, individual's perception on innovative climate may impact motives of new ideas. As a result, personality traits and innovative climate influence individual's innovative behavior in organizations.

Researches on individual's innovative behavior abound (Scott & Bruce, 1994; Amabile, 1997; Judge & Bono, 2002). Most of them focus on bilateral relations among personality traits of employees, perceptions on innovate climate and innovative behavior. Consequently, this study aims to explore whether innovative climate functions as mediation between personality traits and innovative behavior and also the relations among these three with research and development personnel in the communication and networking industry as the research subjects.

2. Literature Review

Studies on personality traits and innovative behavior

Amabile (1997) points out that personal creativity consist of expertise, creative thinking and intrinsic task motivation, among which creative thinking and intrinsic task motivation are correlated to personality traits. Among five personality traits, Conscientiousness is found the best forecast for work performance in various personality assessments (Steward & Carson, 1995).

Barrick & Mount (1991) considered that the low correlation between Neuroticism/Emotional Stability and work performance may result from people who valued themselves as neurotic and unable to effectively finish work are usually those who can not find job easily. Other personality traits such as Openness to Experience and Extraversion are effective forecasting indicators for training proficiency. Gardner & Avolio (1998) think that People with extraversion possess extraverted traits so they can stimulate free speech and communication of other members and further drive the team to accomplish the mission. However, extraversion is closer to the social relation trait and may make team members excessively pursue the harmony of social relations and thus ignore the mission. Thus, extraversion is more suitable as the forecast for performance of sales staff.

Dissent exists on the relation between Agreeableness and work performance. Nevertheless, scholars found out a positive relation between agreeableness and team

performance(Barrick & Stewart,1998). This is because agreeable people usually serve as a social-relation holder in a team. (Costa & McCrae,1988).

H1. There is significant difference between personality traits and innovative behavior

H1-1: Extraversion is positively correlated to Innovative Behavior.

H1-2: Conscientiousness is positively correlated to Innovative Behavior.

H1-3: Agreeableness is positively correlated to Innovative Behavior.

H1-4: Neuroticism/Emotional Stability is negatively correlated to Innovative Behavior.

H1-5: Openness to Experience is positively correlated to Innovative Behavior.

Studies on innovative climate perception and innovative behavior

Bandura (1982) analyzed through the social cognitive theory and claimed that behavior of individuals may be influenced by different surroundings. Social psychology studies also indicate that workplace affects employee's performance on innovation. Researches of Amabile et al. (1996) discovered that the perception of members in an organization on their workplace indeed affects their innovation performance. The environment influence personal innovative behavior. Either the social environment or the material environment is proved influential over the generation of innovation behavior (Tesluk et al. 1997). Past studies also show that the environmental factors in the organization climate stimulate or impede the performance of personal creative behavior.

When a person perceives that his organization supports and encourages members to realize creativities, he shows innovative behavior in response to the organization's expectation and the organization supports his behavior, too. Consequently, the higher innovative climate of an organization a person senses, the more he perform his innovation. In the trait of innovation exhibition, when employees are exposed in the stressful workplace in the long run, not only their body and mind are negatively influenced, but their work performance is decreased (Scott & Bruce, 1994). Therefore, the perception of employees on stimulant or obstacle of their innovations by the organization further promote or demote their innovation.

H2 Innovative climate perception has an influence on innovative behavior

H2-1 Perception on stimulant organizational innovative climate shares positive correlation with innovative behavior.

H2-2 Perception on obstacle organizational innovative climate shares negative correlation with innovative behavior.

Relations among personality traits, perception on organizational innovative climate and innovative behavior

Bandura (1982) once pointed out self evaluation of an individual functions as a

mediator for his action. Scott & Bruce (1994) conducted a study on engineers, scientists and technical staff of one IT company in the U.S.A. “Personal Innovative Behavior” was considered the result of interaction among individuals, leaders, workgroups and organizational innovative climate and member’s perception on organizational innovative climate was adopted as the mediation variable. The result indicates that support for innovation in the organizational climate has a significantly positive influence on personal innovative behavior.

H3 Perception on organizational innovative climate has a mediation effect between personality traits and innovative behavior.

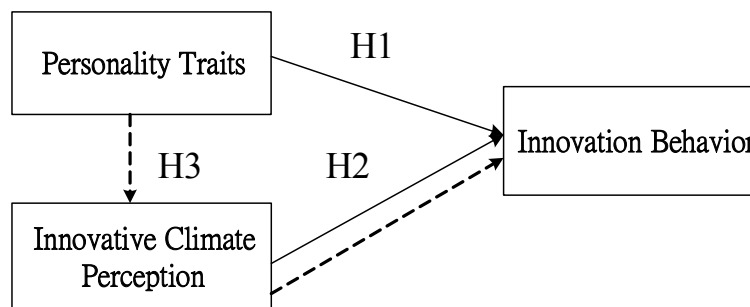


Figure 1. The Study Structure

3. Research Process and Subjects

Samples sources are research and development staff in the TSE & OTC-listed companies in the stock exchange agency. After phone inquiry on willingness to fill in questionnaires, these questionnaires are mailed to communication and networking companies that agree with the research. The questionnaires are formally administered on a total number of 67 communication and networking companies, including 6 communication service companies, 54 communication device companies and 6 communication software companies. 660 questionnaires are issued and 224 are returned. With exclusion of invalid questionnaires with incomplete answers, effective returned questionnaires amounted to 206 and the effective return rate stays at 33.9%.

4. Variable Measurement

Personality

To assess personality traits, this study refers to Big Five Model from NEO Five-Factor Inventory of Costa & McCrae (1992), who categorized personal traits into extraversion, Conscientiousness, Agreeableness, Neuroticism/Emotional Stability and Openness to Experience. This model employs 24 questions to assess personality. The inventory uses the five-point Likert scales with “Strongly Agree” to “Strongly Disagree” given points from five to one. After factor analyses, possessed its

accumulated interpretation variance reaching 63.487%. The reliability analysis indicated that Cronbach's α amounted to 0.937.

Innovative Climate Perception

This study, referring to KEYS of Amabile et al. (1996) and the inventory constructed by Scott & Bruce (1994), developed an inventory appropriate to measure the organization innovative climate perception of researchers and divided the innovative climate perception into the innovation stimulant and the innovation obstacle. 12 questions are devised to measure the innovative climate perception. The inventory employed the five-point Likert scales with "Strongly Agree" to "Strongly Disagree" given points from five to one. After factor analyses, possessed its accumulated interpretation variance reaching 51.170%. The reliability analysis indicated that Cronbach's α amounted to 0.813.

Innovative Behavior

This study, referring to the inventory constructed by Scott & Bruce (1994) and Kleysen & Street (2001) divided personal innovative behavior climate perception into the innovation generation and the innovation execution. 17 questions are devised to measure the innovative behavior. The inventory employed the five-point Likert scales with "Strongly Agree" to "Strongly Disagree" given points from five to one. After factor analyses, possessed its accumulated interpretation variance reaching 50.983%. The reliability analysis indicated that Cronbach's α amounted to 0.913.

5. Result

Correlation

Table 1 represents correlation of variables. In personality traits, significant correlation is seen among every trait. Neuroticism/emotional stability is negatively correlated to every trait while all other traits are positively correlated to each other. In personality trait and innovative climate perception, extraversion, conscientiousness, agreeableness and openness to experience are all significantly correlated to the innovation stimulant ($r=.385$; $r=.359$; $r=.330$; $r=.351$). Neuroticism/emotional stability is significantly correlated to innovation obstacle ($r=.502$). In addition, each personality trait and innovative behavior shows significant correlation. Neuroticism/emotional stability and innovative behavior are negatively correlated ($r=-.339$) and other traits are positively correlated to innovative behavior. As a result, hypotheses in H1 are all supported. Innovative climate perception is significant correlated to innovative behavior in both innovation stimulant and innovation obstacle ($r=.501$; $r=-.188$) with innovation obstacle being negatively correlated. Hence, hypotheses in H2 of this study are also well supported.

Table 1 Descriptive Statistics and Correlation Coefficient of Variables in the Study

	Mean	SD	1	2	3	4	5	6	7
1.Extraversion	3.81	.51							
2.Conscientiousness	3.89	.46	.642**						
3.Agreeableness	3.91	.38	.618**	.682**					
4.Neuroticism/Emotional Stability	2.6	.82	-.402**	-.500**	-.525**				
5.Openness to Experience	3.76	.53	.709**	.606**	.470**	-.368**			
6.Innovation Stimulant	3.33	.45	.385**	.359**	.330**	-.064	.351**		
7.Innovation Obstacle	2.81	.53	-.186	-.214*	-.283**	.502**	-.151*	.047**	
8.Innovative Behavior	3.68	.40	.678**	.686**	.569**	-.339**	.719**	.501**	-.188**

**p<.01; *p<.05

Hierarchical Regression – Mediation Effect

To assess the mediation effect of the organization innovative climate perception on personality traits and innovative behavior, this study refers to Baron and Kenny (1986) and verify the mediation effect in three steps. First, the independent variable (personality traits) and the mediation variable (organization innovative climate perception) both significantly influence the dependent variable (innovative behavior). Second, the independent variable significantly influences the mediation variable. Last, with the mediation variable added, the influence of the independent variable on the dependent variable lessened. If the direct influence of the independent variable on the dependent variable remains significant after the incorporation of the mediation variable, then it is the partial mediation effect. If such influence turns insignificant, it is complete mediation effect.

The correlation coefficients in Table 1 reveal that the personality trait, innovative climate perception and innovative behavior share significant correlations, which meets the first two conditions that Baron and Kenny (1986) presented. The third condition is proved in the comparison of Model 1 and Model 2 of Table 2. Extraversion, conscientiousness and openness to experience in model 1 show significant regression coefficient with innovative behavior ($\beta=.16$, $p<.10$; $\beta=.28$, $p<.05$; $\beta=.38$, $p<.01$) and the test of R^2 change is also significant (.63, $p<.01$). After Model 2 is added innovative climate perception, innovative climate perception and innovative behavior indicates a significant regression coefficient ($\beta=.23$, $p<.05$) and the test of R^2 change is also significant (.04, $p<.05$). Meanwhile, the regression coefficient of extraversion in personality traits falls to insignificance ($\beta=.12$, $p>.10$) and the regression coefficient of conscientiousness and openness to experience fall but

stay significant($\beta=.24$, $p<.05$; $\beta=.35$, $p<.01$). It can be discovered that innovative climate perception contains the significant mediation effect on extraversion of personality traits but only a partial mediation effect on conscientiousness and openness to experience .

Table 2 Summarized Test Analysis of the Mediation Effect of Innovative Climate Perception on Innovation Behavior in Personality Traits

Independent Variable	Model 1		Model 2	
	β	t Value	β	t Value
Extraversion	.164	.1.661 ⁺	.125	.1.315
Conscientiousness	.282	2.938**	.246	2.671**
Agreeableness	.093	1.004	.052	.585
Neuroticism/Emotional Stability	.000	-.003	-.033	-.418
Openness to Experience	.388	4.272***	.359	4.131***
Innovation Stimulant			.230	3.488*
Innovation Obstacle			-.037	-.546
F Value	34.004***		28.593***	
R ²	.637		.678	
Δ F Value	34.004***		6.110**	
Δ R ²	.637		.041	

⁺p<.10; *p<.05; **p<.01

6. Conclusion and Suggestions

The study result shows that, for researchers in the domestic communication networking industry, if their personal traits are prone to extraversion, openness to experience, conscientiousness, agreeableness, they have higher innovation stimulant in the perceived innovative climate and higher neuroticism/emotional stability in perceived innovative obstacle. In the respect of the meditation effect on the innovative climate perception, this study indicates that innovative climate perception contains the significant mediation effect on extraversion of personality traits but only a partial mediation effect on conscientiousness and openness to experience. The exploration on the root cause may reveal that extraversion is prone to the social skill dimension and sensitive to climate perception, which is easily influenced by meditation.

The communication networking industry places extra emphasis on employee innovation performance. Companies offer a considerable number of rewarding practices to fortify the innovative behavior of researchers. Nevertheless, in the communication networking industry, researchers with openness to experience or

conscientiousness can be seen performance the most. Rewarding influences people with these two traits better. Consequently, while employing researchers, companies should hire staff with these traits. An excellent innovation-supporting environment which is provided by the organization so that employees can enjoy strong-decision making power during daily work, support for innovation, sufficient resources and appropriate rewarding can influence the generation of employee's innovation ideas and the extent of innovation execution and further advance researchers' performance on innovation.

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