

Linking personality traits and job satisfaction to creativity

Qinxuan Gu¹ Mingchuan Yu¹ Yu Guan²

¹College of Economics and Management, Shanghai Jiao Tong University, Shanghai 200052

²Liaoh Petroleum Technical College, Liaoning 124010

Qxgu@sjtu.edu.cn

Abstract - In this study, we examine the roles of job satisfaction and proactive personality in the relationship between the four Big Five traits and creativity. Regression analysis is used to test the hypotheses in a sample of 162 respondents. The results show that extraversion and agreeable are positively related to job satisfaction but openness to experience is negatively related to job satisfaction, job satisfaction partially mediates the relationship between openness to experience and creativity. In addition, the study finds that proactive personality positively moderates the relationship between openness to experience and creativity. The theoretical and managerial implications are also discussed.

Index Terms - the Big Five, proactive personality, creativity, job satisfaction.

1. Introduction

Considerable research has suggested that employee creativity is crucial important to organizational innovation, effectiveness, and survival^{1, 2}. When employees exhibit creativity at work, they produce novel and useful ideas about organizational products, practices, services or procedures. The initiation and implementation of these creative ideas enhance an organization's ability to adjust to shifting market condition and respond to opportunities, thereby, to adapt, grow, and compete².

Given the significance of employee creativity, a number of empirical studies have examined the personal and contextual factors that enhance or restrict it³⁻⁷. Personality has received substantial attention in the creativity literature because creativity is conceived as a latent trait underlying creative behavior⁸. The Big Five is one of the most widely accepted comprehensive models of personality⁹, and has been given increased attention in creativity studies^{5,10,11}. Proactive personality is also thought to be an important personal attribute which is more related to creativity^{9,12}. Being different from personality, job satisfaction reflects employees' affective experiences at work. Job satisfaction is typically defined as an employee's affective reactions to a job based on comparing desired outcomes with actual outcomes¹³. The role mood at work plays in enhancing or restraining creativity¹⁴. Although prior research has studied the relationship between personality and creativity^{3, 11, 12} and between role moods at work and creativity¹⁴, little empirical work has examined the effects of compound personality and role moods on creativity.

Our study contributes to the literature on creativity by developing and examining the mediating effect of job satisfaction and moderating effect of proactive personality between the Big Five and creativity. In what follows, we first present the theory background related to this study and develop subsequent hypotheses. Then, we describe the

methods and present our findings. Finally, we conclude the paper by discussing the results and implications and indicating research limitations.

2. Theory and Hypotheses

2.1 The Big Five and employee creativity

The Big Five provides a parsimonious yet comprehensive taxonomy of personality. Each personality dimension describes a broad domain of psychological functioning that is composed from a set of more specific and narrow traits. The Full five factors are openness to experience, conscientiousness, extraversion, neuroticism, and agreeableness¹⁵. In the study, considering that a relation between neuroticism and creativity is a puzzle¹⁰, we did not hypothesize the effect of neuroticism. The four Five Factors in the study include extraversion (i.e., tendency to like people, prefer being in large groups, and desire excitement and stimulation; likely to be assertive, active, talkative), openness (i.e., tendency to have an active imagination, esthetic sensitivity, intellectual curiosity, and be attentive to feelings), agreeableness (i.e., tendency to be altruistic, cooperative, and trusting), and conscientiousness (i.e., tendency to be purposeful, organized, reliable, and determined).

Creativity refers to the production of novel and useful ideas¹. Innovation is rooted in the creative ideas of individual employees⁵. As mentioned above, much research has paid attention to the relationship between the Big Five and creativity or creative performance. King et al.¹⁰ found that extraversion and openness to experience are positively related to creative ability, agreeableness is negatively related to creative accomplishments and conscientiousness was associated with higher levels of accomplishments at low level of creative ability. Individuals with high agreeableness is good-natured and compassionate, and they tend to cooperate with other people and avoid conflict, thus, there is no reason to expect that creative individuals would not be "nice" people¹⁰. Feist¹⁶ found that openness to experience and conscientiousness have the strongest relationship with creativity which indicates that creative people are more open to new experiences and less conscientious in a sample of artists and scientists. George and Zhou⁵ suggested that openness to experience serve to encourage creative behavior when the situation allows for manifestation of the influence of the trait, and high conscientiousness serve to inhibit creative behavior when the situation encourages the conformist and controlled tendencies of employees who are high on conscientiousness. Previous research on the relationship

between conscientiousness and creativity or creative behavior revealed comprehensive yet inconsistent findings. Based on the above considerations, we predict the following:

H1a. Extraversion is positively related to creativity.

H1b. Openness to experience is positively related to creativity.

H1c. Agreeableness is negatively related to creativity.

H1d. Conscientiousness is negatively related to creativity.

2.2 The Big Five and job satisfaction

The factors influencing job satisfaction include both personal and contextual factors¹⁷. Many personality traits have been shown to correlate significantly with job satisfaction¹⁸. The Big Five personality traits, as the most salient aspects of personality, are closely related with job satisfaction^{18, 19}. Extraverts are predisposed to experience positive emotions¹⁵, and positive emotionality likely generalizes to job satisfaction²⁰. Costa and McCrae¹⁵ argued that people with extroversion gain more friends, easier to perceive positive emotion, obtain more reward from colleagues and leaders than introverted people, thus they have higher job satisfaction. Agreeable and conscientious employees are predisposed to engage in activities and behaviors that result in increased job satisfaction¹⁹. Agreeable individuals have greater motivation to achieve interpersonal intimacy, which should lead to greater levels of well-being²¹. Organ and Lingl²² argued that conscientiousness should be related to job satisfaction because it represents a general work involvement tendency and thus leads to a greater likelihood of obtaining satisfying work rewards. In addition, the subjective well-being literature also suggests a positive relationship between conscientiousness and job satisfaction²¹. Although less research has stated that openness to experience is closely related to job satisfaction, some studies showed openness is closely related to subjective well-being²¹. Thus, we predict the following:

H2a. Extraversion is positively related to job satisfaction.

H2b. Openness to experience is positively related to job satisfaction.

H2c. Agreeableness is positively related to job satisfaction.

H2d. Conscientiousness is positively related to job satisfaction.

2.3 The mediating role of job satisfaction

Although less research made about the direct effect of job satisfaction on creativity, considerable research suggested that positive emotion is closely related to creativity. Prior studies showed that people with positive emotion react more actively to creativity than those with unhappy and pessimistic emotion, and grade higher accordingly²³. There is the notion that creativity ought to relate to superior coping and heightened well-being¹⁰. Goff²⁴ reported a positive relation between creativity and life satisfaction. However, previous studies also argued that positive moods, which signal that everything is going well, might not always propel people to put forth high levels of effort to find new and better ways of doing things¹⁴. Clearly, extant literature has inconsistent results on the relationship between positive emotion at work and creativity.

As job satisfaction reflects positive emotion at work, we argue that it may be benefit for creativity. Thus, we predict the following:

H3. Job satisfaction is positively related to creativity.

H4a. Extraversion affects creativity through job satisfaction.

H4b. Openness to experience affects creativity through job satisfaction.

H4c. Agreeableness affects creativity through job satisfaction.

H4d. Conscientiousness affects creativity through job satisfaction.

2.4 The moderating effect of proactive personality

Proactive personality refers to a relatively stable tendency to effect environmental change that differentiates people based on the extent to which they take action to influence their environments²⁵. Individuals with a proactive personality “identify opportunities and act on them, show initiative, take action, and persevere until meaningful change occurs”²⁶. Research has established the relationship between proactive personality and innovation^{9,26} and creativity¹². Individual innovation is a process that begins with problem recognition and the generation of novel and useful ideas. Then, the innovative employee seeks sponsorship for the idea and attempts to build a coalition of supporters for it. Clearly, proactive personality is related to the two stages of innovation²⁶. In addition, research has shown consistent positive relationships between proactive personality and three Big Five factors: extraversion^{27,28}, conscientiousness²⁸, openness to experience^{12,27}.

The Big Five is at a higher level of abstraction than more specific personality traits²⁸, proactive personality is thought to be one example of specific personality traits⁹. Theorists have argued that when attempting to link personality to a specific criterion of interest, the criterion-related validity of basic personality traits is likely to be exceeded by compound personality variables that are more specifically tailored to the outcome⁹. Based on the literature review, we expect that four Big Five factors are more related to creativity when proactive personality is higher. Thus, we predict the following:

H5a. Proactive personality positively moderates the relationship between extraversion and creativity.

H5b. Proactive personality positively moderates the relationship between openness to experience and creativity.

H5c. Proactive personality positively moderates the relationship between agreeableness and creativity.

H5d. Proactive personality positively moderates the relationship between conscientiousness and creativity.

3. Methodology

3.1 Sample

220 part-time MBA students from 5 classes in a leading university located in Shanghai were invited to participate in this study. The questionnaires were administered to the 5 class monitors and we requested them to deliver the questionnaires

to their classmates. 185 completed questionnaires were received. The response rate was 84.09%. The final sample included 162 respondents after removing the deficient responses. Of the 162 respondents, 67.10% were males, and 32.90% were females. 44.87% were 25-29 years old, 44.90% were 30-34, 8.97% were 35-39, 1.28% were 40-44. 69.43% held a bachelor degree, 30.57% held a master degree. In terms of work experience, 14.65% had no more than 1 year, 26.11% had 2-3, 38.22% had 4-6 years, 11.46% had 7-8 years, 3.18% had 9-10 years, and 6.37% had more than 11 years. For marital status, 30.19% married, 68.55% unmarried, 1.26% divorced.

Due to the collection of all measures from the same source, there might be common method variance influencing the research conclusions. Thus, we use the Harman one-factor test to examine the potential problem of common method variance. Significant common method variance would result if one general factor accounts for the majority of variance in the variables²⁹. A principle factor analysis on the questionnaire measurement items of this study yields ten factors with eigenvalues greater than one that accounts for 63.73% of the total variance, and the first factor accounts for 17.35% for the variance. Since a single factor does not emerge and one general factor does not account for most of the variance, common method bias is unlikely to be a serious problem in the data²⁹.

3.2 Measures

We adopted the following scales to measure the four Big Five, proactive personality, job satisfaction, and creativity. All scales followed a 5-point Likert-format, ranging from 1, "strongly disagree," to 5, "strongly agree."

The four Big Five. This measure, which included four factors in this study, was assessed with a 20-item scale adopted from Howard et. al.³⁰. we conducted principal components factor analysis with varimax rotation, and found that and found that 20 items loaded on four factors with eigenvalues greater than one that accounts for 50.38% of the total variance, the Cronbach's α for the variable is 0.73. The Cronbach's α for extraversion, openness to experience, agreeableness and conscientiousness were 0.71, 0.67, 0.75 and 0.70 respectively. We then conducted a confirmatory factor analysis with AMOS 7.0 to test the four-dimensional structure of the Big Five. A four-factor model, with an overall second-order factor, fitted the data reasonably well ($\chi^2/df = 1.41$, RMSEA = 0.05, CFI = 0.92, IFI = 0.92, TLI = 0.89).

Proactive personality. We used Bateman and Crant's²⁵ original scales, which has 10 items, to assess the measure. A sample item was: I am constantly on the lookout for new ways to improve my life. The Cronbach's α for the scale was 0.70.

Job Satisfaction. We assessed the measure with four items from the Michigan Organizational Assessment Questionnaire³¹. A sample item was: in general, I like working here. The Cronbach's α for the scale was 0.77.

Creativity. This measure was assessed with 6 items adapted from George and Zhou⁵. A sample item was: I come

up with new and practical ideas to improve performance. The Cronbach's α for the scale was 0.73.

3.3 Control variable

In testing the effects of the Big Five, job satisfaction and proactive personality on creativity, we control for two variables: individual education and work experience. Education and experience are critical predictors of human capital and have been found to influence employee creativity³².

4. Results

We first performed a set of confirmatory factor analyses to examine the construct distinctiveness of the four Big Five, job satisfaction, proactive personality, and creativity. the baseline seven-factor model fitted the data well ($\chi^2 = 658.97$; $df = 512$; RMSEA = 0.04; CFI = 0.91; IFI = 0.91; TLI = 0.89). Against the baseline seven-factor model, we also tested three alternative models: model 1 was a four-factor model with the four dimensions of the Big Five combined as a single factor; model 2 had three factors with the Big Five merged with job satisfaction to form a single factor; model 3 had two factors with the three dimensions of social capital, job satisfaction and proactive personality merged into one factor. Results showed that the fit indices supported the seven-factor model, providing evidence for the construct distinctiveness.

The means, standard deviations and correlations of all variables appear in table 1. To examine H1a, H1b, H1c, H1d, model4, as shown on Table 2, presented the results of the regression analysis of the effects of the four Big Five traits on creativity, when the four traits were entered simultaneously after the two control variables were entered, model4 was statistically significant. We found that only openness to experience was positively and significantly related to job satisfaction ($\beta = 0.20$, $p < 0.05$), while extraversion, agreeableness, and conscientiousness were insignificantly related to creativity. Thus, H1a is supported while H1b, H1c, H1d are not supported.

To examine H2a, H2b, H2c, H2d, model2, presented the results of the regression analysis of the four Big Five traits on job satisfaction, when the four traits were entered simultaneously after the two control variables were entered, model2 was statistically significant. We found that extraversion and agreeableness had positive and significant relationships with job satisfaction ($\beta = 0.21$, $p < 0.01$; $\beta = 0.29$, $p < 0.001$), openness to experience was negatively and significantly related to job satisfaction ($\beta = -0.20$, $p < 0.01$), and conscientiousness was insignificantly related to job satisfaction. Thus, H1a and H1c are supported while H1b and H1d are not supported.

To examine H3, model2 presented the result of the regression analysis of job satisfaction on creativity, the effect is significant and positive ($\beta = 0.33$, $p < 0.001$). H3 is supported.

To test H4a, H4b, H4c, H4d, our study follows Baron and Kenny's³³ procedures to analyze the mediating effect of job satisfaction between the four Big Five traits and creativity.

The first step is to examine the relationship between independent variable and the dependent variable. As model 4 has shown the results of relationships between the two variables. The second step is to examine the effect of the mediator, job satisfaction on the independent variable, the four Big Five traits. The results of model2 indicate that the two Big Five traits have positive and significant effects on job satisfaction. The third step is to examine the relationship

between mediator and the dependent variable. Model5 has shown that job satisfaction has significant and positive effect on creativity. The fourth step is to include the mediator, job satisfaction, in the model to examine whether it changes the effects of the antecedents. As model 6 show that job satisfaction only partially enhances the positive effect of openness to experience on creativity. Thus, only H4b is supported while H4a, 4c and H4d are not supported.

Table1 Means, standard deviations, and correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1 EL	2.31	.46									
2 WE	2.82	1.26	.00								
3 Ext	3.67	.60	.01	-.00	(.56)						
4 Ope	3.07	.66	.03	-.10	.23**	(.55)					
5 Agr	3.84	.63	.06	-.01	.41**	.08	(.62)				
6 Con	3.86	.61	.17*	.14	.01	-.20*	.37**	(.54)			
7 JS	3.68	.62	-.007	.02	.29**	-.14	.38**	.18*	(.72)		
8 PP	3.87	.38	.08	-.06	.33**	.23**	.32**	.18*	.23**	(.57)	
9 Cre	3.80	.49	.04	.05	.23**	.24**	.21**	.00	.33**	.51**	(.58)

Note: Square roots of AVE are in parentheses along the diagonal. * p<0.05 , ** p<0.01, *** p<0.001, EL="Education level", WE="Work experience" , Ext="Extroversion" Ope="Openness", Agr="Agreeableness", Con="Conscientiousness", JS="Job Satisfaction", PP="Proactive Personality", Cre="creativity"

Hypothesis5 predicts two-way interactions among the four Big Five traits and proactive personality, stating that proactive personality is higher, the four traits have the stronger positive relationships with creativity respectively (H5a, H5b, H5c and H5d). We conducted multiple-regression tests for moderation to test hypothesis 5. Table 3 summarizes the regression results for testing H5a, H5b, H5c and H5d. In support of H5b, the results demonstrated that the standardized regression coefficient associated with the Openness to experience ×Proactive personality two-way interaction was statistically significant ($\beta=0.18$, $p<0.05$), and the model4 explained 3% of the variance. Figure 1 shows that when proactive personality was higher, the stronger relationship between openness to experience and creativity. Thus, H5b is supported, while H5a, H5c and H5d are not supported.

Table 2 Regression results for predicting the mediating effect

JS	Cre					
	M 1	M 2	M 3	M 4	M 5	M 6
Variables	Beta	Beta	Beta	Beta	Beta	Beta
EL	-.07	-.093	.04	.028	.06	.06
WE	.02	-.006	.05	.075	.04	.08
Ext		.21**		.13		0.05
Ope		-.20**		.20*		.27***
Agr		.29***		.15		.05
Con		.05		-.03		-.05
JS					.33***	.34***
R ²	.01	.22***	.00	.11**	.11***	.20***
△R ²	.01	.21***	.00	.11***	.11***	.09***

Note: * p<0.05 , ** p<0.01, *** p<0.001, EL="Education level", WE="Work experience" , Ext="Extroversion", Ope="Openness", Agr="Agreeableness", Con="Conscience- ntiousness", JS="Job satisfaction", "Cre=Creativity"

Table3 Regression results for predicting the moderating effect

Variables	M 1	M 2	M 3	M 4
	Beta	Beta	Beta	Beta
EL	.07	.05	.04	.02
WP	.04	.07	.10	.09
Ext		.11	.00	-.00
Ope		.18*	.09	.04
Agr		.17	.10	.08
Con		-.05	-.13	-.10
PP			.48***	.52***
Ext×PP				-.04
Ope×PP				.18*
Agr×PP				-.10
Con×PP				-.06
R2	.01	.11**	.29***	.32***
△R2	.01	.10**	.18***	.03

Note: * p<0.05 , ** p<0.01, *** p<0.001, EL="Education level", WE="Work experience" , Ext="Extroversion", Ope="Openness", Agr="Agreeableness", Con="Conscience- ntiousness", JS="Job satisfaction", PP="Proactive Personality".

5. Discussion

This study examines the roles of job satisfaction and proactive personality in the relationship between the four Big Five traits and creativity. Consistent with the findings of Costa and McCrae¹⁵ and Ilies et al.¹⁹, our results indicate that extraversion and agreeable are positively related to job satisfaction. However, we finds that conscientiousness is insignificantly related to job satisfaction and openness to experience is negatively related to job satisfaction. Our results also indicate that job satisfaction partially mediates the relationship between openness to experience and creativity, which supports the suggestions about the role of positive

emotion in creativity^{10,23}. Although openness to experience negatively affects job satisfaction, it positively affect creativity partially through job satisfaction. In addition, our findings provide that proactive personality positively moderates the relationship between openness to experience and creativity, which suggests that proactive personality are more specifically tailored to the outcomes such as creativity.

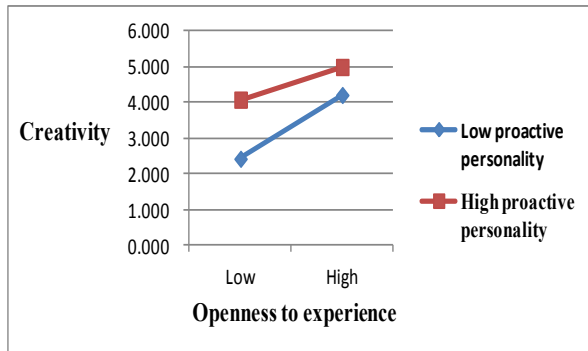


Figure 1 Effects of openness to experience × proactive personality

The results of this study suggest that extraversion and agreeableness serve to encourage job satisfaction, and openness to experience serves to enhance creativity. More specifically, our findings extend the research on the role of positive emotion in creativity by focusing on the mediating role of job satisfaction. Meanwhile, our results also contribute to the creativity literature by examining the interaction between the four Big Five traits and proactive personality on creativity, and indicating proactive personality play a positive moderating role in the relationship between openness to experience and creativity. Therefore, our results suggest that managers should pay much attention to openness to experience, proactive personality and job satisfaction in order to enhance creativity. As divergent thinking may indicate aptitude for creativity and openness to experience is the catalyst that leads to creativity¹⁰, managers should encourage employee to produce novel or different ideas at work. In addition, managers also value and identify creative personality traits such as openness to experience and proactive personality when recruiting and selecting new employees.

This study is not without limitations. First, this study adopted self-reporting method for the measurement of creativity. There may be possible common method variance although there is not serious common method bias. In future research, data should be collected through difference resources, and the measurement of creativity should be based on supervisor's appraisal. Second, the sample data came from part time MBA students, thus the sample had limitation. In future research, the representativeness of sample should be improved.

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