Relationships among Personality Traits, Job Stress, Job Satisfaction and Turnover Intention of R&D Professionals

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Abstract: The purpose of this study is to explore whether R&D professionals’ personality traits and job stress would affect job satisfaction and turnover intention. Results from the study reveal that personality traits (neuroticism and conscientiousness), job stress (role conflict and underutilization of abilities), job satisfaction (work itself, co-workers, and pay) have a significant influence on turnover intention.

Keywords: personality traits, job stress, job satisfaction, turnover intention

1 Introduction

As organizations become more dependent upon technology, their ability to arrest and retain capable R&D professionals becomes increasingly important. The challenges to retain qualified individuals and recognize their demand are old problems with new importance for R&D organizations.

Dole and Schroeder (7) found that personality is an explanation of why some individuals experience relatively high job satisfaction in a particular work environment while others experience relatively low job satisfaction in the same work environment. Subsequently, Heller et al. (8) confirmed that personality traits influenced both job and life satisfaction.

High-tech industries have some characteristics such as short product life cycle, high complexity, quick technology change, and so on. These characteristics might cause job stress for their R&D technicians. And job stress is one of the factors that contribute to people’s intention to quit their jobs (13).
**Personality Traits:** The “big five” or five-factor model of personality represents a taxonomy to parsimoniously and comprehensively describe human personality, whose validity is strongly supported by empirical evidence (12,10,14). The traits of the five dimensions are (a) Neuroticism: may be described as meaning emotional instability and maladjustment by negative emotions. Common traits associated with this factor include being anger, anxiety, fear, depression, worried, insecurity, embarrassment and emotionality, (b) Extraversion: usually associated with it could be talkative, assertive, active, and sociable. Extraversion is also thought as one’s actions such as positive, effectual satisfying, and emotionally. Therefore, an individual with Extraversion inclinations may be exhibit as enthusiastic, energetic, and positive behaviors in setting where social agreement outcomes are likely to follow, (c) Openness: is generally thought an individual’s consciousness includes multiplicity of interests, receptively of new ideas, flexibility of thought, inventiveness, and the tendency to develop idealistic ideas and goals. Traits generally involved imagination, cultural sophistication, originality, intellectual activity, and thoughtfulness, (d) Agreeableness: is the most concerned with interpersonal behavior. Traits are usually associated with altruism, friendliness and modesty, while low agreeableness includes antagonism, impression management and selfishness (2), (e) Conscientiousness: is exemplified by such traits as cautiousness, orderliness, dependability, responsibility, carefulness, hardworking and achievement-oriented. Silva (17) explored the relationship of job attitudes to the big five of personality in a hospitality setting. It is important to establish the relationship between the big five traits and vital organizational behavior variables, including job satisfaction and turnover intention.

In this study, personality traits were measured by NEO-PI-R (Revised NEO Personality Inventory, (6)) which developed from Judge, et al., (10). As a review of the NEO-PI-R has noted, the NEO exhibits relatively high internal consistency, high test-retest reliability, and strong convergent and discriminate validity (10). Each of the five factors in the NEO-PI-R was subdivided into six facets.

**Job Stress:** Job stress has been defined by Parker and DeCotiis (15) as an awareness or feeling of personal dysfunction as a result of perceived conditions or happenings in the workplace, and one’s psychological and physiological reactions to these uncomfortable, undesirable, or threatening workplace conditions. When individuals’ composure is disarranged by job stress, they often deviate from their normal behavior patterns, which will affect their work outcomes in turn. (9). From the above documents, we have focused on the source of job stress in job itself and role in the organization to measure the job stress of R&D professionals.

Job stress was measured by “Job Stress Questionnaire, JSQ” proposed by Caplan et al. (3). This scale included four dimensions, namely: work load, role conflict, role ambiguity and underutilization of abilities, which comprised of 17 items.

**Job Satisfaction:** Smith et al. (18) divided job satisfaction into five dimensions: pay, promotions and promotion opportunities, coworkers, supervisions, and the work itself. Chiang (4) also used the five
dimensions as Smith does to measure job satisfaction. The accuracy of predicting job satisfaction from interests is affected by the tendency to use an overall or global satisfaction score. This study used a later modified version of the scale which had been used by Chiang (4) to measure job satisfaction. This scale had 17 items and included five dimensions: work itself, co-workers, supervisions, pay, and promotion opportunities.

**Turnover Intention:** Robbins (16) defines turnover as voluntary and involuntary permanent withdrawal from the organization. Bluedorn (1) thought that turnover intention is one’s behavioral intention to withdraw from their job voluntarily. Layne et al. (11) thought turnover intention could be a good predictor of actual turnover. Thus, turnover intention in this study may be described as the tendency to leave an organization voluntarily. In this study, turnover intention was measured by three items which were designed by Chiu and Francesco (5), included asking about intentions to quit the job.

**Conceptual Framework:** Based on the previously reviewed literature, the conceptual framework of the study is developed as illustrated in Figure 1.

![Conceptual framework](image)

**Questionnaire Design:** The questionnaire design includes four sections: personality traits, job, stress, job satisfaction and turnover intention. Each item was measured with five items using a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

**Sampling Selection:** Total of 236 usable questionnaires are collected from 750 R&D professionals in Taiwan. The study chose R&D professionals of high-tech industries in Hsinchu Science Park, Taichung Science Park, and Tainan Science Park.

**Research Hypotheses:**

1. **H1:** Personality traits have a significant influence on job satisfaction.
2. **H2:** Job stress has a significant influence on job satisfaction.
3. **H3:** Job Satisfaction has a significant influence on turnover intention.
H 4: Personality traits have a significant influence on turnover intentions.

H 5: Job stress has a significant influence on turnover intention.

2 Main results

The Effect of Personality Traits on Job Satisfaction: Multiple regression analysis was adopted to derive the conclusions. Result shows that personality traits had a significant influence on the five factors of job satisfaction (all p-values <0.01), all five equations were significant that denotes the personality traits had a significant influence on job satisfaction of R&D professionals; thus, supporting hypothesis 1.

Neuroticism was a consistent negative predictor in job satisfaction; Extraversion was a positive predictor in job satisfaction; Openness was a consistent negative predictor in job satisfaction; Agreeableness a positive predictor in job satisfaction; Conscientiousness was a consistent positive predictor in job satisfaction.

The Effect of Job Stress on Job Satisfaction: The results proved clearly that role conflict and underutilization of abilities were consistent negative predictors in all five equations. Workload was consistent positive predictor in the two equations involving supervision and promotion opportunities. On the other hand, role ambiguity had no significant influence in all five equations. This might imply role ambiguity would not affect R&D professionals’ identification with their job satisfaction.

The Effect of Job Satisfaction on Turnover Intention: Results suggested that the coefficient for work itself, co-workers, and pay on job satisfaction are -.172 (p<0.05), -.277 (p<0.001.), and -.214 (p<0.01), respectively. Statistically, the three coefficients show that they had a significant impact, with the sign as expected, being negative. That denoted when job satisfaction increase, turnover intention will decrease to R&D professionals, thus, supporting hypothesis 3. Supervisions and promotion opportunities had no significant influence on turnover intention. That might imply supervisions and promotion opportunities would not affect R&D professionals’ turnover intention.

The Effect of Personality Traits on Turnover Intention: There is a very significant relationship between personality traits and turnover intention; thus, supporting hypothesis 4. In details, neuroticism traits were detected that having a significant positive impacts on turnover intention. At the same time, conscientiousness trait had a significant negative influence on turnover intention as well. On the other hand, extraversion, openness, and agreeableness traits had no significant influence on turnover intention.

The Effect of Job Stress on Turnover Intention: The results show a significant positive influence between job stress and turnover intention (F=10.245, p<0.001); Job stress has a significant influence on turnover intention; thus, supporting hypothesis 5. Also, it was found that role conflict and underutilization of abilities had a significant positive influence on turnover intention. Workload and role ambiguity had no significant influence on turnover intention. That might imply the two factors would not affect R&D professionals’ identification on their turnover intention.
Conclusions and Findings: Firstly, the results found that a significant relationship between personality traits and job satisfaction. The identified relationship between neuroticism and job satisfaction (co-workers, supervisions, pay, and promotion opportunities) suggests that those who possess the characteristics of neuroticism in high degrees must be expected to demonstrate lower satisfaction in their work. High neuroticism is associated with excessive worry, pessimism, low confidence, and tendencies to experience negative emotions. Because of these characteristics, individuals who score high on neuroticism should be less likely to develop positive satisfaction towards their work.

Secondly, job stress is confirmed to have a significant negative impact on job satisfaction. Role conflict and underutilizations of abilities are the primary factors negatively affecting job satisfaction. Workload has a significant positive influence on job satisfaction (supervisions and promotion opportunities). Under the pressure of a lot of workload, R&D professionals are more satisfied with supervisions and promotion opportunities. The more workload R&D professionals have, the better capability they own, and it represents the much more promotion opportunities they have. The results agree with those obtained by previous scholars (19).

Thirdly, in this study, job satisfaction is confirmed to have a negative impact on turnover intentions. The findings provide evidence that satisfaction with their job among R&D professionals reduces their intentions to leave the company. Especially concerning these dimensions, works itself, co-workers, pay, have significant negative influences on turnover intention.

Fourthly, the higher neuroticism traits R&D professionals are, the higher turnover intention they have. Because of their tendency to interpret experiences under negative light, individuals who score high on neuroticism should be less likely to develop positive attitudes towards their work. Furthermore, due to lack of confidence and optimism, those who score high on neuroticism should be more likely to leave their job. On the contrary, conscientiousness trait has a significant positive influence on turnover intention.

Finally, job stress is also confirmed to have a significant positive impact on turnover intentions. Role conflict and underutilizations of abilities have a significant positive influence on turnover intention. This finding emphasizes the importance of conflict and underutilizations of abilities on the career of R&D professionals. As found by Udo et al. (19), organizations can substantially increase employees’ job satisfaction, and likelihood they will stay in the organization by assuring that the job does not require incompatible behavior.

Reference


