International Journal of Asian Business and Information Management
Volume 14 • Issue 1

The Impact Between Motivational Potential Characteristics of Job and Job Satisfaction:
A Moderation Model of Personality Traits in a High-Tech Industry

Chiwei Chen, Zhaoqing University, China*
https://orcid.org/0000-0003-0516-8606
Kun-Shan Zhang, Zhaoqing University, China
Chiu-Mei Chen, Zhaoqing University, China
Lu-Sheng Pao, Sanming University, China

ABSTRACT

This study explored the relationship between the motivational potential characteristics of a job (measured by motivating potential scores or MPS) and job satisfaction and the moderation effect of personality traits. The results showed that the agreeableness personality trait could not significantly predict job satisfaction. However, the higher the MPS and the higher the agreeableness among the employees, the higher the job satisfaction tendency. Conscientiousness and job satisfaction had a significantly positive correlation. The interaction between MPS and conscientiousness also had a significantly positive impact on job satisfaction. The results showed that job satisfaction tended to decline under the interaction of MPS and extraversion. In addition, the interaction of MPS with neuroticism also had a significant effect on job satisfaction. The interaction between MPS and openness to experience had no significant effect on job satisfaction. However, the higher the MPS and the higher the openness of experience of the worker, the higher the job satisfaction.

KEYWORDS

High-Tech Electronic Industry, Job Characteristics, Job Satisfaction, Moderation Effect, Motivating Potential Scores, Motivational Potential Characteristics, Personality Trait,

INTRODUCTION

Examining Taiwan's industries (Central Taiwan Science Park, 2021; Hsinchu Science Park, 2021; Southern Taiwan Science Park, 2021), it was found that Taiwan focused on high-tech industries, including semiconductors, computers, and peripherals, electronic, photoelectric, communications, biotechnology, and high-precision machinery, which had become an important lifeblood of Taiwan's industries. Therefore, this study is aimed at employees of electronics companies in a high-tech industry-intensive science park (Southern Taiwan Science Park, 2021). With the evolution of the

DOI: 10.4018/IJABIM.325650 *Corresponding Author

This article published as an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/) which permits unrestricted use, distribution, and production in any medium, provided the author of the original work and original publication source are properly credited.

trend of the times, the employment relationship is gradually changing. In the past, companies could hire employees even when adopting a condescending manner and focusing on reasonable payment to attract talent. However, with the advent of the era of new knowledge competition, the supervisor–subordinate relationship between top and bottom has become an issue of the past. Competition among modern firms depends almost on the competition between talents, so new equality and partnerships are gradually replacing the old employment relationships. Many enterprises recognize this situation and promote and maintain good labor relations to promote organizational harmony and further enhance the competitiveness of the organization.

This study explored the correlation between the motivating potential characteristics of job and personality traits of employees and their job satisfaction to help enterprises improve their job characteristics and enhance the motivational effect of the job. At the same time, this study examined whether enterprises recognized the differences in individual personality traits of employees to ensure that employees maintained the best psychological condition and high-quality job performance. The objectives of this article are as follows:

1. Explore the impact of the motivating potential effects of job on job satisfaction.
2. Study the moderation effect of personality traits on the relationship between the motivating potential effects of job and job satisfaction.
3. Understanding the motivating potential characteristics of jobs for workers with different personality traits gives enterprises a reference for job design to enhance the job efficiency of employees.

LITERATURE REVIEW AND HYPOTHESES

Job Characteristics

The Definition of Job Characteristics

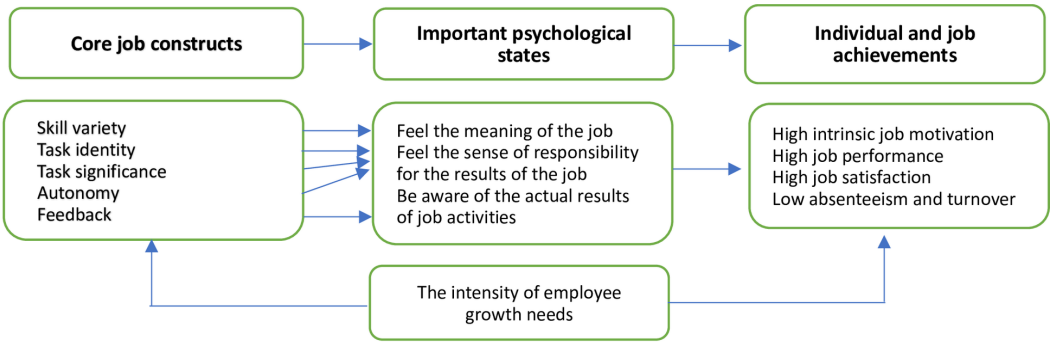
Job characteristics could be defined as the various attributes and factors related to a job. The wage and beneficiary of jobs, necessary skills, human relationships, the nature of the job itself, and the opportunity to obtain new knowledge or development all could be counted as job characteristics (Seashore & Tabor, 1975). Sims et al. (1976) proposed the following reasons why job characteristics are important: job characteristics will affect employee job satisfaction and job performance, and job characteristics have a large amount of influence on leadership behavior, job satisfaction, and job performance.

The concept of job characteristics originated in Taylor's four principles of scientific management. However, after the Second World War, with the development of the field of psychology, new theories of job characteristics appeared, but researchers still felt that the scope of job characteristics was large and insufficiently defined. When Turner and Lawrence (1965) proposed the theory of requisite task attribute (TRTA), systematic research on job characteristics was thus started (Ke, 1995; Wang, 1996).

Hackman and Lawler (1971) proposed the theory of job characteristics (TJC), which considered that individuals had different needs and job goals, so the different needs of individuals must precede job design. The hypothesis was that when workers believed they would get what they wanted by doing something, the likelihood of choosing that behavior increased. The extent to which they wished to receive something depended on whether that item could meet their needs. Therefore, the job must also be able to meet the needs of employees. When that happened, workers would work hard.

Hackman and Oldham (1975) simplified and systematized the relationship between job characteristics and personal responses to jobs and proposed the job characteristics model (JCM). This model is a popular job characteristic analysis structure (see Figure 1) that proposes five important job characteristics and predicts the impact of these characteristics on employee productivity, morale, and satisfaction.

Figure 1. The job characteristics model



Core Job Constructs

There are five items in core job constructs. These are:

1. **Skill variety:** The degree of skills and talents required by employees to complete the job.
2. **Task identity:** Workers can do the whole job, not just part of it, and can clearly confirm the results of their efforts.
3. **Task significance:** The extent to which a job has a substantial influence on the lives or jobs of others.
4. **Autonomy:** Workers have the degree of discretion to decide on the planning of the job, the equipment used, and the procedures of the job.
5. **Feedback:** The extent to which employees are directly and clearly informed of their job performance.

Important Psychological States

The three psychological states are the causal core of the job characteristics model, prompting the worker to generate intrinsic motivation within himself. It must be when these three psychological states are present, and his intrinsic motivation is the highest. The psychological states are as follows:

1. **Feeling the meaning of the job:** Employees feel that the job is meaningful and valuable.
2. **Feel the sense of responsibility for the results of the job:** The degree to which the employee feels responsible for the job carried out is related to the autonomy of the job.
3. **Be aware of the actual results of job activities:** The degree to which employees know or understand the job results is related to the feedback of the job.

Individual and Job Achievements

From the job characteristics model, one can know that good job characteristics can motivate workers with high growth demand intensity and make them have good job results. From the hypotheses of job theory, it has been shown that the psychological state generated by the job characteristics will affect the employee's job response, which includes job motivation, job satisfaction, job performance, and absenteeism and mobility (Holman et al., 2010; Johari & Yahya, 2016).

The Intensity of Employee Growth Needs

Hackman and Oldham (1975) pointed out that employees engaged in the job with good characteristics were better than those with poor job characteristics in terms of job motivation, job performance, job satisfaction, and absenteeism and departures while also considering the differences between individual

workers. They believed that each person's response to the job was different, so added personal growth needs as moderation variables. According to the hypotheses of the job characteristics theory, the growth demand belongs to a higher level of demand, corresponding to the need for self-esteem and self-actualization in the hierarchy of needs theory (Maslow, 1954).

Motivating Potential Scores (MPS)

Based on the five core job constructs of the job characteristics model, MPS can be calculated to represent whether the job has the characteristics of motivating the worker's job potential. Hackman and Oldham (1975) believed that a job with motivating potential promotes intrinsic motivation for the job and therefore achieves better job outcomes. A job with motivating potential must contain three key factors, namely: at least one job characteristic that affects the job experience, high autonomy, and high feedback. If either job autonomy or job feedback has a zero value, the MPS is zero. If any of the skills variability, job identity, or job significance has a zero value, it does not make MPS zero, but it will reduce MPS. The formula for MPS is:

$$MPS = \frac{\left(skill\ \ variety + job\ \ identity + job\ \ significance\right)}{3} \times job\ \ autonomy \times job\ \ feedback$$

In addition to measuring the motivating potential that the job brings to employees, MPS is often used to represent the overall index of the sum of the five characteristics in job design. That is, MPS can be said to be an integrated representative tool for measuring whether the job entails these five job characteristics (Fried & Ferris, 1987). The higher the degree of the five features of the job characteristics model included in the job design, the higher the job MPS score.

The Relationship Between MPS and Job Satisfaction

The situational approach (or job characteristics approach) considered that objective job characteristics, job situations, or environments had direct impacts on job satisfaction (Judge et al., 1998; Johari & Yahya, 2016). Therefore, the better the job characteristics, the higher the job satisfaction of the employee. However, Locke (1976), Hackman (1980), and Fried and Ferris (1987) believed that not every job characteristic was related to job satisfaction, but specific job characteristics, such as job challenge, job significance, job reward, growth opportunities, job autonomy, and variability would cause job satisfaction. Xie (1987) pointed out that not all five core job constructs were related to job satisfaction, and the motivating potential score was significantly related to job satisfaction (Song, 1984). Because MPS can represent the degree to which the overall job characteristics can motivate the job potential, and the job with the more motivating potential characteristics can promote the intrinsic job motivation of the worker, therefore MPS affects the job satisfaction of the worker. Consequently, this study would employ MPS to explore the relationship between job satisfaction (Sun, 2000).

Job Satisfaction

The fundamental concept of job satisfaction was first proposed by Hoppock (1935), who believed that job satisfaction referred to the satisfaction of environmental factors in both psychological and physiological aspects of workers. This implied that job satisfaction was the subjective response to the job situation, and the subjective reaction was an emotional response toward the job. Whether this feeling or reaction was satisfied could depend on the specific job environment. There was a gap between the expected value and the value obtained. The larger the gap, the lower the satisfaction. Due to the many factors that affected job satisfaction, there was no complete model that would include all the factors related to job satisfaction. Generally speaking, job satisfaction could be roughly divided into internal satisfaction (job content, job

stability, and leadership style), external satisfaction (salary, promotion channels), general job satisfaction (working environment, interpersonal relationships), and demographic variables (age and gender; Chen et al., 2022; Matus & Frazer, 1996).

Job Satisfaction Variable Modes

Seashore and Taber (1975) summarized the main variables of job satisfaction and distinguished them into antecedent variables and consequence variables. Antecedent variables mainly include environmental variables (e.g., unemployment rate, occupational prestige, and organizational climate) and personal factors (e.g., demographic variables, personality traits, and abilities). The consequence variables are divided into three categories, namely personal reaction variables (such as negative retreat), organizational reaction variables (such as productivity and turnover rate), and social reaction variables (such as gross national production and disease rate).

Locke (1973) distinguished the main variables affecting job satisfaction into two factors: events and agents. Z. Xu (1977) distinguished the main variables affecting job satisfaction into "factors that are not directly related to the organization" (e.g., personal traits such as age and gender, and socio-cultural factors such as traditional culture and values) and "factors directly related to the organization" (e.g., the job itself such as job autonomy and job variability; interpersonal relationships such as the relationship between superiors and subordinates and the relationship between colleagues). Chang (1992) distinguished the main variables related to job satisfaction into "situational variables" and "personal attribute variables."

Personal Attributes and Job Satisfaction

- **Gender:** The correlation between gender and job satisfaction has not yet been determined, and reports of significant gender differences, such as by Zhuang (1994), have resulted in that the job satisfaction found in men was higher than the job satisfaction found in women. There have also been studies showing no significant differences in gender, such as those by Hulin and Smith (1964), Huang (1980), and Liu (1996).
- **Age:** Many studies reported that age and job satisfaction are positively correlated (Chen et al., 2022; Hulin & Smith, 1964; Shi, 1991; Zhuang, 1994).
- **Marital status:** Many studies have pointed out that married people were more satisfied with their jobs than unmarried people were, such as in the study by S. Xu (1977) and Chen et al. (2022). Some married people were less satisfied with their jobs than unmarried people were, as described in the study by Song (1992). In addition, some studies showed no significant difference in marital status as it related to job satisfaction (Huang, 1980; Z. Xu, 1977).
- **Education:** Research, such as that of Martin et al. (1981) and Ke (1989), reported that educational attainment was positively correlated with job satisfaction. The research, such as that of S. Xu (1977), showed that educational attainment and job satisfaction were negatively correlated. The research, such as that of Peng (1981), showed that educational attainment was not significantly correlated with job satisfaction.

Job Variables and Job Satisfaction

- **Seniority:** Seniority was positively correlated with job satisfaction, for example, in S. Xu (1977) and Chen et al. (2022). Seniority was negatively correlated with job satisfaction in Gibson and Klein (1970). Seniority and job satisfaction showed a U-shaped correlation in Herzberg et al. (1957) and Chen (1984). Seniority was not significantly correlated with job satisfaction in Huang (1982) and Shi (1991).

- **Job position:** People with higher job positions had higher job satisfaction than lower-ranking people, such as Porter and Lawler (1968), Zhuang (1994), and Chen et al. (2022). Job satisfaction of managers was higher than that of non-managers, such as Huang (1982) and Zhao (1990).

Studies of Job Satisfaction Variables

In studies on job satisfaction, many papers have explored the antecedents and consequences of the above variables. The antecedent variable treated job satisfaction as a dependent variable (Marta et al., 2021; Steyn, 2014). Its main purpose was to identify those job-related variables that affected job satisfaction, such as whether the job was mentally challenging, fair treatment of employees, supportive job environment, and supportive colleagues. The consequence variable was based on job satisfaction as an independent variable, and most scholars paid more attention to the impact of job satisfaction on employee productivity, absenteeism rate, and turnover rate (Azadeh & Mousavi Ahranjani, 2014; Chen et al., 2022; Lee et al., 1995; Morris & Venkatesh, 2010; Sabella et al., 2016; Siengthai & Pila-Ngarm, 2016; Valaei & Rezaei, 2016).

Personality Traits

The Definition of Personality

Personality is the sum of individual characteristics and attributes, a persistent and special trait that sets an individual apart from others (Allport, 1937). Personality also interacts with the situation. Allport (1937) argued that personality is a dynamic organization located within an individual's psychology system, determining the individual's unique pattern of "adaptation to external circumstances" and "thought and behavior."

Big Five Categories of Personality Trait Theory

Allport and Odbert (1936) analyzed 17,953 words related to personality and divided them into four categories, which became the basis for later decisions on personality configuration. Cattell (1946) explored the basic aspects of personality from English natural words. Fiske (1949) and Tupes and Christal (1961) both based on Cattell's study, and both settled on five factors, namely *energy*, *agreeableness*, *dependability*, *emotional stability*, and *culture*.

Norman (1963) improved the research of other trait theorists and conducted a factor analysis and found that the simple structure of the five factors involved *agreeableness*, *conscientiousness*, *extraversion*, *emotional stability*, and *elegance*. Goldberg (1990) validated Norman's five-factor structure, and the Big Five personality traits widely accepted were proposed by Costa and McCrae (1986), which were *agreeableness*, *conscientiousness*, *extraversion*, *neuroticism*, and *openness to experience*.

Studies of Personality Traits

Personal traits have been used in research in many fields, for example studying:

- How teenagers from different cultural backgrounds differ in second-language acquisition learning outcomes regarding different personality traits (Dewaele, 2012).
- Differences in personality traits of entrepreneurs (Leutner et al., 2014; Kerr et al., 2018).
- The stability of Big Five personality traits (Bleidorn et al., 2021; Cobb-Clark, 2012).
- Personality–place transactions (Matz & Harari, 2021).
- The relationship between personality and user motivation (Omar & Dequan, 2020).
- Personality traits and emotion regulation (Hughes et al., 2020).

Combined with the findings of these studies and their reasoning, the following hypotheses were thus established:

Hypothesis 1: The higher the MPS, the higher the job satisfaction of the people with high agreeableness.
Hypothesis 2: The higher the MPS, the higher the job satisfaction of the people with high conscientiousness.
Hypothesis 3: The higher the MPS, the higher the job satisfaction of the people with high extraversion.
Hypothesis 4: The higher the MPS, the lower the job satisfaction of people with high neuroticism.
Hypothesis 5: The higher the MPS, the higher the job satisfaction of people with high openness to experience.

METHODOLOGY

Research Framework

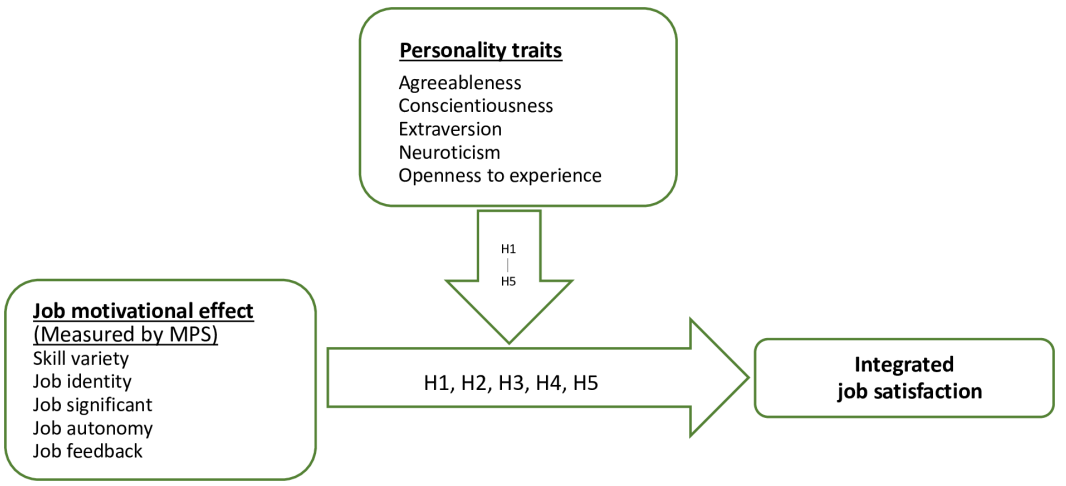
This study explored how the relationship between the motivational effect of the job and job satisfaction was affected by personality traits. Therefore, the Big Five personality traits were used as moderation variables. The job characteristics model believes that the higher the motivating potential scores (MPS), the more intrinsically motivated the worker can be, thereby increasing job satisfaction. Therefore, this study would use MPS to verify the motivating potential effect of work on job satisfaction. Judge et al. (1998) pointed out that the relationship between job characteristics and job satisfaction would be interfered with by personality trait factors. Therefore, this study assumed that the Big Five personality traits would also affect the relationship between job characteristics and job satisfaction. The research framework is shown in Figure 2.

Research Tools

The Design of the Questionnaire

The questionnaire was divided into four parts. The first part was the job characteristic scale, which was based on the job diagnostics survey (JDS) of Hackman and Oldham (1975), measuring five core job constructs and two auxiliary constructs with Cronbach alpha coefficient between 0.58 and 0.88

Figure 2. Research framework



(Ke, 1995). In this study, five core constructs would be measured to calculate the motivating potential scores (MPS). The second part, the personality traits questionnaire, was based on Costa and McCrae's (1992) NEO five-factor personality questionnaire (NEO-FFI). Cronbach's alpha coefficients were 0.77, 0.82, 0.78, 0.84, and 0.66 for agreeableness, conscientiousness, extraversion, neuroticism, and openness to experience, respectively (Morrison, 1997). The third part was the Minnesota Satisfaction Questionnaire developed by Davis et al. (1967). Cronbach's alpha coefficient for reliability ranged from 0.77 to 0.92 (Hsiang, 2002). The fourth part concerned personal background information.

Data Analysis Methods

The relationship among independent variables (MPS), moderation variables (the Big Five personality traits) and dependent variables (integrated job satisfaction) would be analyzed by using Pearson product–moment correlation method. The effects of independent variables, moderation variables, and interaction variables on dependent variables would be analyzed by multiple regression methods (stepwise regression and hierarchical regression). The methods and concepts proposed by Baron and Kenny (1986), Mackinnon et al. (1995), and Mackinnon (2008) were also used to test the moderation effect.

Sample Targets and Data Collection

A pilot test was employed, and the results found that the reliability test and validity test were within an acceptable range. Therefore, a formal sampling was conducted to acquire questionnaires from the employees of high-tech electronics companies in Southern Taiwan Science Park (2021). Because it occurred during the impact of the COVID-19 pandemic (World Health Organization, 2020), the sampling process was based on questionnaires established by a mobile application (Questionnaire Star could be used on a mobile phone or a computer which is a very reliable app and was widely used in China). The sampling period was April 2021, and a total of 288 valid questionnaires were obtained. The SPSS21 software was used for performing statistical analysis.

RESULTS

Descriptive Statistics

The characteristics of the sample are shown in Table 1, with 192 males, accounting for 66.7% of the sample size. Age was mostly concentrated in 31 to 35 years, accounting for 55.56%; educational attainment was concentrated in high school, accounting for 55.56%; seniority was concentrated between 6 to 10 years on the job, accounting for 83.33%.

Reliability Analysis

Table 2 contained the content of the questionnaires used in this study, including the Job Diagnostic Questionnaire, the NEO five-factor personality questionnaire, and the Minnesota questionnaire (short form). Among them, Cronbach's alpha value of the job construct was 0.52, Cronbach's alpha value of the Big Five personality traits was between 0.57 and 0.84, and Cronbach's alpha value of the job satisfaction construct was 0.88, which were all within the acceptable range.

Correlation Analysis

In this study, Pearson product–moment correlation analysis was used to test the degree of correlation between independent variables (job motivating potential score), moderation variables (Big Five personality traits), and dependent variables (job satisfaction). Table 3 shows the correlation analysis results. Between MPS and personality traits, there was a significantly negative correlation between MPS and agreeableness, extraversion, and openness to experience (r was between -0.184 and -0.377). MPS showed a significantly positive correlation with conscientiousness ($r = 0.15$, $p < 0.05$), and MPS

Table 1. Descriptive statistics

Demographic variables	Group	Number of people	Percentage (%)
Gender	Male	192	66.70
	Female	96	33.30
Age	25 years and below	0	0
	26–30 years	32	11.11
	31–35 years	160	55.56
	36–40 years	80	27.78
	41 years and above	16	5.55
Education	Below senior high school (vocational school)	160	55.56
	University (junior college)	128	44.44
	Above graduate school	0	0
Seniority	Under 1 year	0	0
	1–2 years	32	11.11
	3–5 years	16	5.56
	6–10 years	240	83.33
	11 years and above	0	0

Table 2. The contents of each construct and its reliability

Construct/variable	Question Items	Cronbach's Alpha (α)
Job characteristics	1–15 questions	0.52
Personality:	**Questions:**	
1. Agreeableness	4, (9)[1], (14), (19), (24), 29, 34, (39), (44), 49, (54), (59)	0.57
2. Conscientiousness	5, 10, (15), 20, 25, (30), 35, 40, (45), 50, (55), 60	0.84
3. Extraversion	2, 7, (10), 17, 22, (27), 32, 37, (42), 47, 52, (57)	0.75
4. Neuroticism	(1), 6, 11, (16), 21, 26, (31), 36, 41, (46), 51, 56	0.73
5. Openness to experience	3, 8, 13, (18), (23), (28), (33), 38, 43, (48), 53, 58	0.60
Job satisfaction	1–20 questions	0.88

Note: [1] Numbers in parentheses indicate the reverse design of question items.

showed a significantly positive correlation with job satisfaction ($r = 0.315, p < 0.01$). In the correlation analysis between personality traits and job satisfaction, agreeableness, extraversion, neuroticism, and openness to experience were significantly and negatively correlated with job satisfaction (r was between -0.255 and -0.509, $p < 0.01$). Conscientiousness was significantly and positively correlated with job satisfaction ($r = 0.275, p < 0.01$).

Regression Analysis

This section analyzed the influence of demographic variables (gender, age, education, and seniority), MPS, and Big Five personality traits on job satisfaction and the interactions between MPS and Big Five personality traits on job satisfaction by multiple regression. The purpose of this analysis was to

Table 3. The correlation analysis among MPS, personality traits, and job satisfaction

	MPS	Agreeableness	Conscientiousness	Extraversion	Neuroticism	Openness to experience
MPS	-					
Agreeableness	-0.276**	-				
Conscientiousness	0.150*	0.530*	-			
Extraversion	-0.377**	0.571**	0.285	-		
Neuroticism	-0.057	-0.185	-0.283	-0.077	-	
Openness to experience	-0.184**	0.360	0.045	0.458*	0.276	-
Job satisfaction	0.315**	-0.255**	0.275**	-0.509**	-0.298**	-0.315**

Note: * $p < 0.05$, ** $p < 0.01$

examine whether job satisfaction had the ability to explain the variation and focused on the interactions of MPS and personality traits at a job, as well as the ability and direction of job satisfaction prediction. The analysis would also verify whether the Big Five personality traits had a significant moderation effect between the potential characteristics of the job and job satisfaction.

As illustrated in Table 4, the regression model had significant explanatory variability ($F = 2.71$, $p < 0.01$). The ability of the regression model to explain the total variation in job satisfaction (R^2) was 65.8%. Among demographic variables, gender, age, and education were significantly associated with job satisfaction, while seniority did not have a significant effect on job satisfaction. MPS had a significantly positive effect on job satisfaction ($\beta = 0.277$, $p < 0.01$), indicating that the higher the MPS, the higher the job satisfaction. The contribution of MPS to job satisfaction was higher than that of personality traits and interaction variables to job satisfaction, indicating that MPS was the best predictor of job satisfaction. Among the Big Five personality traits, conscientiousness had a significantly positive effect on job satisfaction ($\beta = 0.458$, $p < 0.05$).

In the regression model, the interaction of MPS with agreeableness did not have a significant effect on job satisfaction, so Hypothesis 1 was not supported: It proposed that the higher the MPS and the workers who had high agreeableness, the higher the job satisfaction. Although the results of this study were not significant, basically, there was a positive relationship between agreeableness and job satisfaction. That is, the higher the MPS, the higher the agreeableness of the person, and the higher the job satisfaction. The direction of impact was the same as in Hypothesis 1.

Hypothesis 2 proposed that the higher the MPS, the higher the job satisfaction of those who had high conscientiousness. The results showed that the interaction between MPS and conscientiousness had a significantly positive effect on job satisfaction ($\beta = 0.168$, $p < 0.05$), indicating that in the job with higher MPS, the higher the conscientiousness, the higher the job satisfaction. Therefore, Hypothesis 2 was supported.

In the regression model, the interaction of MPS with extraversion had no significant effect on job satisfaction. Therefore, Hypothesis 3 was not supported: It proposed that the higher the MPS, the higher the job satisfaction for those who with higher extraversion. However, the results found that the interaction between MPS and extraversion had a negative impact on job satisfaction.

Hypothesis 4 proposed that the higher the MPS, the lower the job satisfaction for those who were high neuroticism. The results of this study showed that the interaction between MPS and neuroticism had a significantly positive effect on job satisfaction ($\beta = 0.183$, $p < 0.05$). Hypothesis 4 was supported.

In the regression model, the interaction of MPS with the openness to experience did not have a significant effect on job satisfaction, so Hypothesis 5 was not supported: It proposed that the higher the MPS, the higher the job satisfaction of those who had high openness to experience. Although the results were not significant, basically, there was a positive impact between openness to experience

Table 4. The regression analysis among personal factors, MPS, personality traits, and job satisfaction

Demographic variables	Block 1			Block 2			Block 3		
	Beta	***t***	***p***	**Beta**	***t***	***p***	**Beta**	***t***	***p***
Gender	0.073	0.593	0.039*	0.035	0.551	0.043*	0.012	0.52	0.046*
Age	0.162	0.653	0.035*	0.149	0.603	0.038*	0.126	0.562	0.042*
Education	0.227	1.194	0.024*	0.24	1.086	0.025*	0.227	1.055	0.026*
Seniority	-0.384	-0.312	-0.078	-0.371	-0.269	-0.082	-0.358	-0.238	-0.086
MPS				0.281	1.326	0.018*	0.277	1.314	0.020*
Personality traits (PT):									
Agreeableness				0.062	0.202	0.16	0.053	0.198	0.162
Conscientiousness				0.462	2.301	0.011*	0.458	2.296	0.012*
Extraversion				-0.276	-1.242	-0.020*	-0.27	-1.238	-0.021*
Neuroticism				-0.243	-1.221	-0.022*	-0.239	-1.214	-0.023*
Openness to experience				0.108	0.403	0.064	0.104	0.398	0.066
Interactions of MPS and PT:									
MPS * agreeableness							0.076	0.385	0.068
MPS * conscientiousness							0.168	1.766	0.016*
MPS * extraversion							-0.025	-0.245	-0.088
MPS * neuroticism							0.183	1.355	0.019*
MPS * openness to experience							0.071	0.254	0.084
R^2	0.413			0.509			0.658		
F	1.98*			2.310**			2.710**		
P	0.023			0.009			0.003		

Note: ** $p < 0.01$, *$p < 0.05$. Block 1 = demographic variables; Block 2 = MPS and personality traits (PT); Block 3 = interactions of MPS and PT

and job satisfaction. That was, the higher the MPS, the higher the job satisfaction of those who had high openness to experience. The direction of impact was the same as Hypothesis 5.

CONCLUSION

The Summary of Result Analysis

From the previous results, it could be concluded that the relationship between MPS and job satisfaction was moderated by conscientiousness personality traits, and when the MPS of the job was higher, the higher the job satisfaction of workers with high conscientiousness. Workers with high neuroticism had lower job satisfaction than workers with low neuroticism. Therefore, Hypotheses 2 and 4 were supported. When the MPS was higher, job satisfaction was not significantly higher for workers with higher agreeableness, extraversion, and openness to experience personality traits. Therefore, Hypotheses 1, 3, and 5 were not supported.

Discussion

Examining the relationship between demographic variables and job satisfaction, it was found that education significantly affects job satisfaction ($\beta = 0.227$), even more significantly than the influence of personality trait variables and interaction variables on job satisfaction. According to Hackman and Oldham (1975), the relationship between MPS and job satisfaction was that a higher MPS—without measuring the difference in individual personality traits—allowed workers to feel motivated by the job and could produce intrinsic job motivation. This positive feeling affected the level of job satisfaction.

The results of this study found that even considering individual personality trait differences, workers recognized the more motivating potential they were to the job (i.e., the higher the MPS), personality traits still had a significant impact on job satisfaction (see Table 4). Therefore, it could be verified that the better the job characteristics perceived by the worker (and the better the motivating potential characteristics of the job), the higher the job satisfaction. Regarding the issue of whether personality traits moderated the relationship between MPS and job satisfaction, the factors of personality traits were thus analyzed individually.

Agreeableness and the Relationship Between MPS and Job Satisfaction

The results of the study found that although the agreeableness personality trait could not significantly predict job satisfaction, its *t*-value was close to the significant level ($\beta = 0.053$, $t = 0.198$), which was the same as the inference direction proposed by Organ and Lingl (1995), that is: The higher agreeableness, the higher the job satisfaction. The results showed that the interaction between MPS and agreeableness did not have a significant effect on job satisfaction. However, it could be seen from the regression coefficient that the higher the MPS, the higher the agreeableness of the worker, and the higher the job satisfaction tendency.

The results of the study showed that the interaction between MPS and agreeableness did not significantly predict job satisfaction, possibly because workers with higher agreeableness personality traits were willing to spend time and energy building long-term relationships with others. However, the workforce in the electronics industry had a frequent turnover, so it was less likely to maintain long-term interpersonal relationships at work. Therefore, when close interpersonal relationships could not be established, even if the job was more motivating, it could not produce a highly motivating effect that would satisfy that worker.

Conscientiousness and the Relationship Between MPS and Job Satisfaction

According to the results of correlation analysis, the correlation coefficient between conscientiousness and job satisfaction in the Big Five personality traits was not high, but it had reached a significant positive correlation ($r = 0.275$). When considering the effects of MPS interaction with MPS and personality traits on the job, the predictive power of conscientiousness on job satisfaction was significant ($t = 2.296$), and the interaction between MPS and conscientiousness had a significantly positive effect on job satisfaction ($\beta = 0.168$, $p < 0.05$). It meant that the higher the MPS, the more conscientious the worker, and the higher the job satisfaction.

Because workers with high conscientiousness had a high demand for achievement, they were considered to be the personality trait factors that predicted job performance best (Barrick & Mount, 1991; Barrick et al., 1993; Stewart et al., 1996). The pursuit of job performance was triggered by intrinsic incentive motivation (Deci & Ryan, 1985). Therefore, a worker who had a strong intrinsic incentive motivation would feel higher job satisfaction when the job could provide higher incentive factors to strengthen the job motivation of this highly conscientious worker. The results of this study found that among the Big Five personality traits, conscientiousness and job satisfaction had the highest positive correlation coefficient ($r = 0.275$). When considering the impact of MPS and the interaction between MPS and personality traits, the contribution of conscientiousness to job satisfaction ($\beta = 0.458$, $p < 0.05$) reached a significant level. Therefore, conscientiousness was the personality trait that could best predict job satisfaction.

Extraversion and the Relationship Between MPS and Job Satisfaction

Workers with higher extroverted personality traits—who usually had more positive feelings in general—were more likely to show positive emotions regarding their work (Bleidorn et al., 2021; Lüdtke et al., 2011; Mammadov, 2022; Watson & Clark, 1997). Therefore, they had higher job satisfaction with their work. When examining the effects of MPS and extraversion on job satisfaction separately, the higher the MPS, the higher the job satisfaction. The higher the extraversion of a worker, the higher that worker's potential job satisfaction. However, under the interaction between MPS and extraversion, job satisfaction tended to decline, which was contrary to the influence direction of the research hypothesis.

The main factors influencing job satisfaction included job characteristics, worker traits, and organizational characteristics (Glisson & Durick, 1988), so it was speculated that one of the possible reasons was due to the influence of factors on organizational characteristics. According to the study by Wu (1990), there was a management style in high-tech companies that emphasized the organizational characteristics of working in teams. When the sample of this study was in an organizational culture that emphasized teamwork, the highly extroverted worker had the desire to dominate even if he liked teamwork, hoping to be in the team or become a leader. However, the team-oriented culture did not encourage individual dominance. Therefore, even if the potential characteristics of the job were better, the organizational culture failed to let the extroverted worker play the dominant power, and the worker would likely be dissatisfied with the work situation.

Neuroticism and the Relationship Between MPS and Job Satisfaction

As discussed in the literature review, workers who were more neurotic had a negative view of improvements in job characteristics (Bleidorn et al., 2021; Costa & McCrae, 1986; Mammadov, 2022) and were therefore dissatisfied. However, this study found that the interaction between MPS and neuroticism was significant. This influence direction was the same as the hypothesis inference. The possible reason was that people with high neuroticism had a positive feeling about the increase in the potential characteristics of job motivation. However, the external incentive factors (such as salary and benefits) were still not satisfied, so their job satisfaction would be reduced. Because the effect of extrinsic incentive factors was less pronounced, the more neurotic workers were in higher MPS, the less satisfied they were.

Openness to Experience and the Relationship Between MPS and Job Satisfaction

This study assumed that the higher the MPS, the higher the job satisfaction of workers with high openness to experience. The results showed that the interaction between MPS and openness to experience did not have a significant effect on job satisfaction. However, it was shown from the regression coefficient that the higher the MPS, the higher the openness to experience of the workers, and the higher the job satisfaction tendency. In line with the literature review (Bleidorn et al., 2021; Lüdtke et al., 2011; Mammadov, 2022), workers with high openness to experience were creative, and creative people showed autonomy. The workers who exhibited more openness to experiences would feel more satisfied in a job with autonomy.

Management Implications

According to the results of this study, when the organization hoped to strengthen the satisfaction of employees with their job, in addition to considering the incentive effect of the job characteristics itself, the organization should also consider the differences in the personality traits of the workers to support them in achieving higher job satisfaction. Therefore, this study provides the following suggestions for enterprises to manage their personnel.

According to Glisson and Durick (1988), the main factors influencing job satisfaction were job characteristics, worker traits, and organizational characteristics. This study considered the impact of

both job characteristics and worker characteristics on job satisfaction. The result found that increasing the motivational potential of the job could improve employee job satisfaction. Therefore, job designers should consider redesigning a poorly designed job to improve job characteristics by considering the job constructs in this article and thus increase job satisfaction.

The literature review pointed out that because people with high extroversion were often in a positive emotional state, therefore it was easy for them to have positive feelings about things. This study considered the impact of both job characteristics and worker traits on job satisfaction. However, it was found that the higher the extroverted personality traits, the lower the job satisfaction (negative correlation). Under the interaction between MPS and extraversion, job satisfaction tended to decline, which was contrary to the influence direction of the research hypothesis. Therefore, even if the potential characteristics of the job were better, the organizational culture failed to let the extroverted worker play the dominant power, and the worker would likely be dissatisfied with his work situation. Thus, management personnel should notice that people with more extroverted personality traits are less satisfied with their jobs, and necessary cautions should be well prepared.

Conscientiousness had a positive moderation effect on the motivating potential job characteristics and job satisfaction. That was, the higher the motivating potential characteristics, the higher the motivational effect for workers with high conscientiousness (highly disciplined people), and the more likely that workers were more satisfied. Therefore, it is necessary to enhance job structures by redesigning job content considering the job constructs that were studied in this article, which are skill variety, job identity, job significance, job autonomy, and job feedback, especially with more attention to job autonomy and job feedback.

ACKNOWLEDGMENT

This research was supported by the Grand Number: 611/700106 of Zhaoqing University. The APC (Article Processing Charge) was supported by Dr. Kun-Shan Zhang.

AUTHOR CONTRIBUTIONS

Fellow researchers and authors contributed as follows: Conceptualization: C. Chen, K. Zhang, C. M. Chen, & L. Pao; methodology: C. Chen, K. Zhang, C. M. Chen, & L. Pao; formal analysis: C. Chen, K. Zhang, C. M. Chen, & L. Pao; writing/original draft preparation: C. Chen, K. Zhang, C. M. Chen & L. Pao; writing/review and editing: C. Chen, K. Zhang, C. M. Chen & L. Pao. All authors have read and agreed to the published version of the manuscript. C. Chen & K. Zhang contributed equally and are co-first authors. C. Chen & C. M. Chen are co-corresponding authors.

COMPETING INTERESTS

The authors declare that there is no conflict of interest.

ETHICAL APPROVAL

Ethical approval was granted by the author's institution.

INFORMED CONSENT

Informed consent was obtained from all participants or their legal guardians.

REFERENCES

Allport, G. W. (1937). *Personality: A Psychological Interpretation*. Holt.

Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs*, *47*(1), i–171. doi:10.1037/h0093360

Azadeh, A., & Mousavi Ahranjani, P. (2014). The impact of job security, satisfaction and stress on performance assessment and optimization of generation companies. *Journal of Loss Prevention in the Process Industries*, *32*, 343–348. doi:10.1016/j.jlp.2014.10.002

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. doi:10.1037/0022-3514.51.6.1173 PMID:3806354

Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*(1), 1–26. doi:10.1111/j.1744-6570.1991.tb00688.x

Barrick, M. R., Mount, M. K., & Strauss, J. P. (1993). Conscientiousness and performance of sales representatives: Test of the mediating effects of goal setting. *The Journal of Applied Psychology*, *78*(5), 715–722. doi:10.1037/0021-9010.78.5.715

Bleidorn, W., Hopwood, C. J., Back, M. D., Denissen, J. J., Hennecke, M., Hill, P. L., Jokela, M., Kandler, C., Lucas, R. E., Luhmann, M., Orth, U., Roberts, B. W., Wagner, J., Wrzus, C., & Zimmermann, J. (2021). Personality trait stability and change. *Personality Science*, *2*, 1–20. doi:10.5964/ps.6009

Cattell, R. B. (1946). *Description and measurement of personality*. World Book Company.

Central Taiwan Science Park. (2021). *Home.* CTSP. https://ctsp.gov.tw

Chang, L. (1992). *Organization sociology*. Sanming Book Co.

Chen, C., Pao, L., & Lei, H. (2022). The examination of job separation tendency of nursing staff in the first public–private joint-venture hospital in Taiwan: A multiple mediation model of job satisfaction and job performance. *Humanities & Social Sciences Communications*, *9*(1), 425. doi:10.1057/s41599-022-01456-2

Chen, F. (1984). *The study on the relationship between personal attributes, job satisfaction and work engagement-an empirical study of the financial industry* [Master's thesis, Chengchi University].

Cobb-Clark, D. A., & Schurer, S. (2012). The stability of big-five personality traits. *Economics Letters*, *115*(1), 11–15. doi:10.1016/j.econlet.2011.11.015

Costa, P. T., & McCrae, R. R. (1986). Cross-sectional studies of personality in a national sample: I. Development and validation of survey measures. *Psychology and Aging*, *1*(2), 140–143. doi:10.1037/0882-7974.1.2.140 PMID:3267390

Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO personality inventory. *Psychological Assessment*, *4*(1), 5–13. doi:10.1037/1040-3590.4.1.5

Davis, R. V., Weiss, D. J., England, G. W., & Loftquist, L. H. (1967). *Manual for the Minnesota satisfaction questionnaire*. Industrial Relations Center, Word Adjustment Project.

Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, *19*(2), 109–134. doi:10.1016/0092-6566(85)90023-6

Dewaele, J. M. (2012). Personality: Personality traits as independent and dependent variables. *Psychology for language learning: Insights from research, theory and practice*, 42-57.

Fiske, D. W. (1949). Consistency of the factorial structure of personality ratings from different sources. *Journal of Abnormal and Social Psychology*, *44*(3), 329–344. doi:10.1037/h0057198 PMID:18146776

Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel Psychology*, *40*(2), 287–322. doi:10.1111/j.1744-6570.1987.tb00605.x

Gibson, J. L., & Klein, S. M. (1970). Employee attitudes as a function of age and length of service: A reconceptualization. *Academy of Management Journal*, *13*(4), 411–425. doi:10.2307/254831

Glisson, C., & Durick, M. (1988). Predictors of job satisfaction and organizational commitment in human service organizations. *Administrative Science Quarterly*, *33*(1), 61–81. doi:10.2307/2392855

Goldberg, L. R. (1990). An alternative "description of personality": The big-five factor structure. *Journal of Personality and Social Psychology*, *59*(6), 1216–1229. doi:10.1037/0022-3514.59.6.1216 PMID:2283588

Hackman, J. R. (1980). Work redesign and motivation. *Professional Psychology*, *11*(3), 445–455. doi:10.1037/0735-7028.11.3.445

Hackman, J. R., & Lawler, E. E. (1971). Employee reactions to job characteristics. *The Journal of Applied Psychology*, *55*(3), 259–286. doi:10.1037/h0031152

Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *The Journal of Applied Psychology*, *60*(2), 159–170. doi:10.1037/h0076546

Herzberg, F., Mausnes, B., Peterson, R. O., & Capwell, D. F. (1957). *Job attitudes: Review of research and opinion*. Psychological Service of Pittsburgh.

Holman, D. J., Axtell, C. M., Sprigg, C. A., Totterdell, P., & Wall, T. D. (2010). The mediating role of job characteristics in job redesign interventions: A serendipitous quasi-experiment. *Journal of Organizational Behavior*, *31*(1), 84–105. doi:10.1002/job.631

Hoppock, R. (1935). *Job satisfaction*. Harper.

Hsiang, P. H. (2002). *The relationship among transformational leadership, locus of control, and job satisfaction: A case study on Taiwanese television reporters* [Unpublished master's thesis, Sun Yat-sen University].

Hsinchu Science Park. (2021). *Home.* HSP. https://hsp.gov.tw

Huang, G. (1982). *Leadership style, work characteristics, motivation for achievement, internal and external control, arbitrariness and the relationship between teachers' work satisfaction* [Master's thesis, Chengchi University].

Huang, T. (1980). *Study on the satisfaction of the work of public servants in public offices under the jurisdiction of Taiwan provinces, towns, counties and counties* [Master's thesis, Chengchi University].

Hughes, D. J., Kratsiotis, I. K., Niven, K., & Holman, D. (2020). Personality traits and emotion regulation: A targeted review and recommendations. *Emotion (Washington, D.C.)*, *20*(1), 63–67. doi:10.1037/emo0000644 PMID:31961180

Hulin, C. L., & Smith, P. C. (1964). Sex difference in job satisfaction. *The Journal of Applied Psychology*, *48*(2), 88–92. doi:10.1037/h0040811

Johari, J., & Yahya, K. K. (2016). Job characteristics, work involvement, and job performance of public servants. *European Journal of Training and Development*, *40*(7), 554–575. doi:10.1108/EJTD-07-2015-0051

Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *The Journal of Applied Psychology*, *83*(1), 17–34. doi:10.1037/0021-9010.83.1.17 PMID:9494439

Ke, H. (1989). *Study on the relationship between job satisfaction, job performance and tendency to leave* [Master's thesis, Chengchi University].

Ke, J. (1995). *The impact of the individual characteristics of employees, their perceived work characteristics, and leadership styles on organizational commitment* [Master's thesis, Chung Hsing University].

Kerr, S. P., Kerr, W. R., & Xu, T. (2018). Personality traits of entrepreneurs: A review of recent literature. *Foundations and Trends in Entrepreneurship*, *14*(3), 279–356. doi:10.1561/0300000080

Lee, Q., Lee, Y., & Zhao, M. Translated. (1995). Organization behavior. Hwatai Publisher.

Leutner, F., Ahmetoglu, G., Akhtar, R., & Chamorro-Premuzic, T. (2014). The relationship between the entrepreneurial personality and the big five personality traits. *Personality and Individual Differences*, *63*, 58–63. doi:10.1016/j.paid.2014.01.042

Liu, J. (1996). *Employee satisfaction tracking surveys* [Summer research project]. Sun Yate-sen University.

Locke, E. A. (1973). Satisfiers and dissatisfiers among white-collar and blue-collar employees. *The Journal of Applied Psychology*, *58*(1), 67–76. doi:10.1037/h0035418

Locke, E. A. (1976). The nature and causes of job satisfaction. Handbook of Industrial and Organizational Psychology.

Lüdtke, O., Roberts, B. W., Trautwein, U., & Nagy, G. (2011). A random walk down university avenue: Life paths, life events, and personality change at the transition to university life. *Journal of Personality and Social Psychology*, *101*(3), 620–637. doi:10.1037/a0023743 PMID:21744977

MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. Erlbaum.

MacKinnon, D. P., Warsi, G., & Dwyer, J. H. (1995). A simulation study of mediated effect measures. *Multivariate Behavioral Research*, *30*(1), 41–62. doi:10.1207/s15327906mbr3001_3 PMID:20157641

Mammadov, S. (2022). Big five personality traits and academic performance: A meta-analysis. *Journal of Personality*, *90*(2), 222–255. doi:10.1111/jopy.12663 PMID:34265097

Marta, I. A., Supartha, I., Dewi, I. G. A. M., & Wibawa, I. (2021). Job enrichment, empowerment, and organizational commitment: The mediating role of job motivation and job satisfaction. *The Journal of Asian Finance, Economics, and Business*, *8*(1), 1031–1040. doi:10.13106/jafeb.2021.vol8.no1.1031

Martin, T. N., Price, J. L., & Mueller, C. W. (1981). Job performance and turnover. *The Journal of Applied Psychology*, *66*(1), 116–119. doi:10.1037/0021-9010.66.1.116

Maslow, A. H. (1954). *Abraham Maslow's Hierarchy of needs motivational model*. Harper and Row.

Matus, J. C., & Frazer, G. H. (1996). Job satisfaction among selected hospital CEOs. *The Health Care Supervisor*, *15*(1), 41–60. PMID:10159639

Matz, S. C., & Harari, G. M. (2021). Personality–place transactions: Mapping the relationships between Big Five personality traits, states, and daily places. *Journal of Personality and Social Psychology*, *120*(5), 1367–1385. doi:10.1037/pspp0000297 PMID:32496085

Morris, M. G., & Venkatesh, V. (2010). Job characteristics and job satisfaction: Understanding the role of enterprise resource planning system implementation. *Management Information Systems Quarterly*, *34*(1), 143–161. doi:10.2307/20721418

Morrison, K. A. (1997). Personality correlates of the five-factor model for a sample of business owners/managers: Associations with scores on self-monitoring, Type A behavior, locus of control, and subjective well-being. *Psychological Reports*, *80*(1), 255–272. doi:10.2466/pr0.1997.80.1.255 PMID:9122336

Norman, W. T. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings. *Journal of Abnormal and Social Psychology*, *66*(6), 574–583. doi:10.1037/h0040291 PMID:13938947

Omar, B., & Dequan, W. (2020). Watch, share or create: The influence of personality traits and user motivation on TikTok mobile video usage. *International Journal of Interactive Technologies*, 121–137. https://doi.org/10.3991/ijim.r14i04.12429

Organ, D. W., & Lingl, A. (1995). Personality, satisfaction, and organizational citizenship behavior. *The Journal of Social Psychology*, *135*(3), 339–350. doi:10.1080/00224545.1995.9713963

Peng, G. (1981). *A study of the correlation between personality traits, organizational climate, and job satisfaction* [Master's thesis, Chengchi University].

Porter, L. W., & Lawler, E. E. (1968). What job attitudes tell about motivation. *Harvard Business Review*, *46*, 118–126.

Sabella, A. R., El-Far, M. T., & Eid, N. L. (2016). The effects of organizational and job characteristics on employees' organizational commitment in arts-and-culture organizations. *The International Journal of Organizational Analysis*, *24*(5), 1002–1024. doi:10.1108/IJOA-08-2015-0900

Seashore, S. E., & Taber, T. D. (1975). Job satisfaction indicators and their correlations. *The American Behavioral Scientist*, *18*(3), 333–368. doi:10.1177/000276427501800303

Shi, P. (1991). *Research on employee satisfaction, work engagement and intention to leave in the industries* [Master's thesis, Chengchi University].

Siengthai, S., & Pila-Ngarm, P. (2016, August). The interaction effect of job redesign and job satisfaction on employee performance. *Evidence-based HRM: A Global Forum for Empirical Scholarship, 4*(2), 162–180.

Sims, H. P. Jr, Szilagyi, A. D., & Keller, R. T. (1976). The measurement of job characteristics. *Academy of Management Journal*, *19*(2), 195–212. doi:10.2307/255772 PMID:1029346

Song, D. (1984). *A study on the relationship between the motivation of insurance practitioners and job satisfaction in terms of job characteristics* [Master's thesis, Taiwan University].

Song, Q. (1992). *Study of female employees' intention to leave* [Master's thesis, Chung Cheng University].

Southern Taiwan Science Park. (2021). *About.* STSP. https://stsp.gov.tw

Stewart, G. L., Carson, K. P., & Cardy, R. L. (1996). The joint effects of conscientiousness and self-leadership training on employee self-directed behavior in a service setting. *Personnel Psychology*, *49*(1), 143–164. doi:10.1111/j.1744-6570.1996.tb01795.x

Steyn, R., & Vawda, N. (2014). Job characteristics: Their relationship to job satisfaction, stress and depression. *Journal of Psychology in Africa*, *24*(3), 281–284. doi:10.1080/14330237.2014.906076 PMID:25632265

Sun, L. (2000). *The relationship between demographic attributes, the effect of remuneration incentives and job satisfaction* [Master's thesis, Chengchi University].

Tupes, E. C., & Christal, R. E. (1961). Recurrent personality factors based on trait ratings. *Journal of Personality*, *60*(2), 225–251. doi:10.1111/j.1467-6494.1992.tb00973.x PMID:1635043

Turner, A., & Lawrence, R. (1965). *Industrial jobs and the worker: An investigation of response to task attributes*. Harvard University.

Valaei, N., & Rezaei, S. (2016). Job satisfaction and organizational commitment: An empirical investigation among ICT-SMEs. *Management Research Review*, *39*(12), 1663–1694. doi:10.1108/MRR-09-2015-0216

Wang, X. (1996). *The impact of job motivation on organizational commitment, job satisfaction, and performance: Use LMX and job characteristics as mediating variables* [Master's thesis, Chung Cheng University].

Watson, D., & Clark, L. A. (1997). Measurement and mismeasurement of mood: Recurrent and emergent issues. *Journal of Personality Assessment*, *68*(2), 267–296. doi:10.1207/s15327752jpa6802_4 PMID:16370781

World Health Organization. (n.d.). *Coronavirus 2019.* WHO. https://www.who.int/emergencies/diseases/novel-coronavirus-2019

Wu, H. (1990). *An empirical study of the human resource management pattern of high-tech companies* [Doctoral dissertation, Taiwan University].

Xie, L. (1987). *Research on the correlation between job characteristics, personal attributes and employee job satisfaction* [Master's thesis, Chiao Tung University].

Xu, S. (1977). Job satisfaction, individual characteristics and organizational climate: Literature review and empirical research. *Bulletin of Chengchi University*, *35*, 13–56.

Xu, Z. (1977). The study of job satisfaction of factory workers and their related factors. *Academia Sinica. Collection of Ethnographic Research Institutes*, *43*, 26–63.

Zhao, B. (1990). *A study on the relationship between enterprise liberalization and the departure of personnel from financial institutions: A case study of financial institutions in Kaohsiung City* [Master's thesis, Sun Yat-sen University].

Zhuang, R. (1994). *Research on the satisfaction of junior high school faculty and staff with organizational commitments* [Master's thesis, Chengchi University].

Chiwei Chen is a professor at the College of Economics and Management of the Zhaoqing University (China). He has a long teaching activities in consumer's behavior, logistic management, supply chain management, production management, quality management. He received his PhD in Industrial Engineering at the University of South Florida (USA). Among his research interests are consumer's behavior, customer satisfaction, service quality, supply chain management, production and quality management, and artificial neural networks.

Kun-Shan Zhang is an associate professor at the College of Tourism Management of Zhaoqing Universty. His research interests include service quality and consumer behavior.

Chiu-Mei Chen is an associate professor at the College of Tourism Management of Zhaoqing University in Guangdong Province, China, with a doctorate from the Department of Information Management, Sun Yat-sen University, Taiwan and with personal research expertise in information management, e-commerce, intelligent tourism, consumer behavior, human resources, and tourism product planning.

Lu-Sheng Pao is an associate professor at Sanming University. His research interests include job satisfaction, service quality, and consumer behavior.