

The Effect of Five-Factor Model of Personality Traits on Turnover Intention among Information Technology (IT) Professionals

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ABSTRACT This study aims to identify the factors affecting turnover intention among IT professionals. A model was developed with the inclusion of five-factor model of personality traits, job satisfaction, career satisfaction, career self-efficacy and career commitment. A total of 430 responses were gathered from IT professionals working in Turkey. Structural equation modeling technique was used for the analysis. According to the results, job satisfaction and career commitment have direct negative effects on turnover intention. In addition, two of the five personality traits- conscientiousness and openness to experience - and career self-efficacy indirectly affect turnover intention.

Keywords: IT professional, Five-factor model of personality traits, turnover intention, career commitment, job satisfaction, career satisfaction

Beş-Faktörlü Kişilik Özelliklerinin Bilişim Teknolojileri (BT) Profesyonellerinin İşten Ayrılma Niyetine Etkisi

ÖZ Bu çalışmanın amacı bilişim teknolojileri (BT) profesyonellerinin işten ayrılma niyetine etki eden faktörlerin araştırılmasıdır. Araştırma modeli olarak beş-faktörlü kişilik özellikleri, iş memnuniyet, kariyer memnuniyeti, kariyer konusunda kendine güven ve kariyer bağlılığı faktörlerini içeren bir araştırma model oluşturulmuştur. Türkiye’de BT alanında çalışan 430 profesyonelden veri toplanarak Yapısal Eşitlik Modellemesi yöntemi ile araştırma modelindeki ilişkiler test edilmiştir. Sonuçlara göre iş memnuniyet ve kariyer bağlılığının işten ayrılma niyetine direkt pozitif bir etkisi vardır. Ayrıca, beş-faktörlü kişilik özelliklerinden sorumluluk ve deneyime açıklık ve kariyer konusunda kendine güven faktörlerinin işten ayrılma niyetine dolaylı bir etkisi bulunmaktadır.

Anahtar Kelimeler: BT profesyonelleri, Beş-faktörlü kişilik özellikleri, işten ayrılma niyeti, kariyer bağlılığı, iş memnuniyet, kariyer memnuniyeti

INTRODUCTION

The turnover of information technology (IT) professionals is one of the major and most frequently encountered problems among companies (Agrawal et al., 2012), including the ones that do not regard themselves as technology firms (Mourmant et al., 2009). For the achievement as well as the success of strategic business aims, retaining specialized IT professionals within a company is critical. The Gartner group predicts that “it costs up to 2.5 times the annual salary of the IT professional leaving the organization”. The cost includes “advertising, recruiters’ cost, traveling cost, interview, training times and the lost productivity with the learning curve of new IT professionals being hired” (Luftman and Kempaiah, 2007). Furthermore, the resignation of an individual IT employee may prevent or delay the implementation of a new system, since IT professionals take tacit knowledge, skills and unique abilities with them when they leave the current organization (Moore and Burke, 2002). From the human resources management perspective, the loss of an employee causes prohibitive costs to companies in terms of recruitment and training, and further it becomes more difficult to maintain a work force (Cho and Sung, 2011). Therefore, understanding the factors that affect the decision to leave the current organization is important for the continuity and success of organizations.

A review of the literature on turnover behaviour shows that personality characteristics do have an effect on an employee’s turnover intention and behaviour (Zimmerman, 2008). Knowing the personality traits of the employees in the organizations is important in understanding how employees’ personality type affects the employees’- behaviour in the work environment, professional communication, job satisfaction, and finally career satisfaction (Rooney, 2010). Further, it was found that in the pre-hire situation applicants who are “conscientious and emotionally stable were less likely to quit their jobs and have higher performance within six months after hire” (Barrick and Zimmerman, 2009). Five basic dimensions of personality traits are used in this study. The reasons for using the five-factor model of personality traits are as follows: First, a wide array of personality traits is integrated; second, it is a comprehensive and efficient model; third, personality questionnaires can be applied across cultures (McCrae and John, 1992).

Several studies explored the significant effect of personality traits on turnover intention (Ariyabuddhiphongs and Marican, 2015; Barrick and Zimmerman, 2009; Zimmerman, 2008). However, this study comprises of a comprehensive model, which aims to explore the effect of the five-factor model of personality traits on job satisfaction, career satisfaction, career self-efficacy, career commitment and eventually turnover intention. These variables were selected because of their potential effect in explaining the turnover decision. In addition to the personality traits, the literature shows the crucial influence of job satisfaction on the quitting decision and both career satisfaction and career commitment (Jang and George, 2012; Kanwar et al., 2012; Shah, 2011). Furthermore, the model in this study overcomes previous models, focusing solely on either job satisfaction (Jang and George, 2012; Kanwar et al., 2012) or career

satisfaction (Joo and Park, 2010), in order to shed light on the impact job satisfaction and career satisfaction have on turnover intention. Finally, this study has a contribution to the existing literature by focusing on the employees working specifically in IT related roles in companies in Turkey.

IT professionals were selected as the focus of this study, since they form the basis of the activities in the organizations and make significant contributions to the growth and competitiveness of the firms. According to the IT industry competitiveness index (2009) Turkey has fallen eight places in 2009 among 66 countries due to impairment in its R&D environment and human capital (The Economist, 2009). Thereby, human capital related issues such as retaining a qualified employee are critical. However, according to the Yenibiris Employment Report, job vacancies in IT area have increased by 30% in the first quarter of 2012 with respect to the last quarter of 2011, and the number of applicants for these vacancies has increased by 46% (TUBISAD). These statistics denote the complexity of retaining a qualified IT professional within the organizations in Turkey.

The remaining part of this paper is set out as follows: The research model and hypotheses included are mentioned in the next section. This is followed by the research methodology. The article concludes with the results and discussion of the findings.

RESEARCH MODEL and HYPOTHESES

The developed research model is shown in Figure 1.

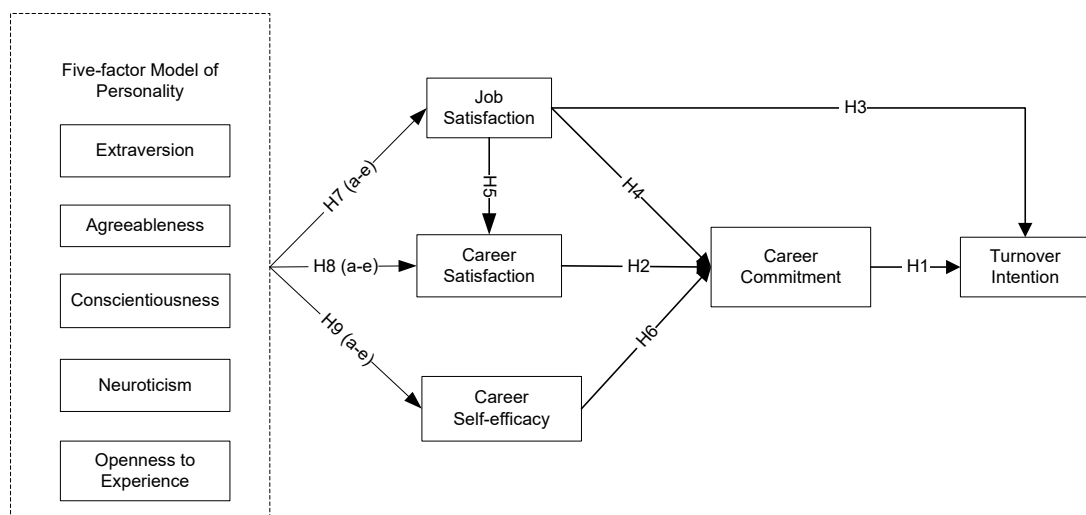


Fig. 1. Research model

Turnover intention

The intention of an individual denotes the likelihood of performing one of the alternatives, and it is expected that the individual who expressed his/her intention will perform

the indicated alternative in the future. That is, intention is the previous step of an actual behaviour (Ajzen and Fishbein, 1980). Accordingly, turnover is the follow on step of turnover intention, which is defined as the likelihood of leaving the current occupation for several reasons such as alternative job opportunities, promotional opportunities, job content and job stress (Griffeth et al., 2000).

Career commitment

Holmes and Cartwright (1993) defined the term “career” for middle-class managerial and professional occupations, as a direction during their working lives. Career commitment relates to the motivation of the professionals to pursue a career in a specific field (Kidd and Green, 2006). In this study, career commitment consists of three sub-constructs: career identity, career planning and career resilience. Career identity is “establishing a close emotional association with one’s career” (Fu, 2011). Career identity slowly takes shape through personal experiences gained over time. Individuals realize the subjective meaning of the actions and positions at work with the formation of career identity. Lastly, career identity constitutes a part of career commitment with a long and continuing process (Hoekstra, 2011). Career planning is “determining one’s developmental needs and setting career goals” by considering the capabilities of the employee. Career resilience can be defined as “resisting career disruption in the face of adversity” (Fu, 2011). People who are career resilient have skills, attitudes and knowledge that enable them to manage obstacles as well as opportunities that change may bring (Hopper, 2008).

Career commitment is related with occupational job withdrawal cognition (Carson and Bedeian, 1994). The professional who is committed to a career will try to overcome “obstacles and setbacks that are encountered” throughout the career to achieve career goals. On the other hand, those who are less committed to their careers will choose to make career change (Fu, 2011). Further, employment security and therefore being permanently attached to a firm is becoming less likely than in the past; in practice many individuals change their employers several times in their working life. Thereby, with the career planning activities career transition is achieved easily with less stress (Aryee and Debrah, 1993). Furthermore, theoretically, career commitment is negatively related with the intention to leave the occupation (Kim et al., 2012; Duffy et al., 2011). Therefore, the following hypothesis is proposed:

H1: Career commitment is negatively related with turnover intention

Career satisfaction

Career satisfaction is an individual’s feeling about the career related roles, overall accomplishments, skill development, income expectations and career success (Kong et al., 2012; Erdogan et al., 2012). Career satisfaction is the accumulated experience of an individual over his/her working life it is not only related to a particular job. Therefore, it can be considered as a more important indicator of an individual’s views related with the work (Erdogan et al., 2012). It is expected that IT professionals who are satisfied with their career express more commitment

to their careers. Several studies have also confirmed the significant relationship between career satisfaction and career commitment (Fu, 2011; Bowling et al., 2006). Fu (2011) found that career satisfaction is the most significant predictor of career commitment. In addition professional self-efficacy, threat of professional obsolescence and career investment are found to be the other important significant predictors. Bowling et al. (2006) found a significant correlation between career satisfaction and career commitment over a five-year period. Therefore, the following hypothesis is proposed:

H2: Career satisfaction is positively related with career commitment

Job satisfaction

Job satisfaction is the “result of employees' perception of how well their job provides those things that are viewed as important” (Kanwar et al., 2012). Dissatisfaction with a job may induce employees to seek more attractive positions. Further, expectations about the achievements in the prospective time may be affected negatively (Lee, 2000). Besides, job satisfaction affects the feeling of career satisfaction, since career satisfaction is related with the accumulated experiences achieved during the working life (Erdogan et al., 2012). Further, job satisfaction can be considered as a way of improving the commitment of employees to their careers (Shah, 2011). A review of the literature also explored the significant effect of job satisfaction- on turnover intention (Jang and George, 2012; Kanwar et al., 2012) on career satisfaction (Murawski et al., 2008) and on career commitment (Shah, 2011). Therefore, the following hypotheses are proposed:

H3: Job satisfaction is negatively related with turnover intention

H4: Job satisfaction is positively related with career commitment

H5: Job satisfaction is positively related with career satisfaction

Career self-efficacy

Self-efficacy influences the behaviours of individuals in which both initiation and persistence of coping behaviour is affected. People may avoid threatening situations if they believe the activity exceeds their skills. On the other hand, they may carry out activities when they believe themselves capable of overcoming several issues (Bandura, 1977). There may be several areas such as their career that individuals feel a lack of confidence in their abilities. This negative feeling may restrain possible career options and therefore the possible success achieved with the desired career options (Betz and Hackett, 2006).

Self-efficacy may be considered as a self-mechanism to explain individual behaviour and “could be a forceful antecedent to career commitment” (Niu, 2010). Individuals, who believe in themselves and are confident that they will accomplish career goals and career plans, learn new things related with their job, contend with career difficulties and problems, are expected to commit to their current profession. Several studies also confirmed the positive effect of career self-efficacy on career commitment (Fu, 2011; Chemers et al., 2011; Niu, 2010). Fu (2011)

surveyed 255 IT professionals and found that professional self efficacy is positively related to career commitment; Chemers et al. (2011) found that several factors such as science self-efficacy, leadership/teamwork self-efficacy, and identity as a scientist predict commitment to a science career amongst undergraduate students; Niu (2010) analyzed the impact of different self-efficacy degrees (high and low) on career commitment and found that career commitment is affected by a high-level of self-efficacy. Therefore, the following hypothesis is proposed:

H6: Career self-efficacy has a positive effect on career commitment

The five-factor model of personality

The five-factor model of personality includes five basic dimensions of personality traits: conscientiousness, neuroticism, extraversion, openness to experience and agreeableness. Conscientiousness is exemplified by being dependable, responsible for ethical issues, productive, planned, reliable and thorough. Conscientious individuals are more likely to commit to their careers (Carless and Bernath, 2007) and prefer to spend extra energy on their jobs. Furthermore, team members possessing similar personality in conscientiousness and agreeableness improve the performance of the overall team (Reilly et al., 2002).

Agreeableness refers to being appreciative, cooperative, forgiving, sympathetic, considerate, kind and trusting towards others (McCrae and John, 1992). Agreeable individuals prefer to have close relationships with their teammates. Further because of their cooperative and self-sacrificing nature, they have a relational contract with others (Raja et al., 2011). The performance of an individual IT employee may affect the performance of other employees in other departments and even in other countries, since even a small part of unsatisfactory project outcomes may affect adversely all participants of a project (Lounsbury et al., 2007). On the other hand, a successful outcome of any project may increase the feeling of satisfaction among all employees.

Neuroticism refers to the degree of emotional instability, impulse control, anxiety, depression and touchiness exhibited by an individual (McCrae and John, 1992). Neurotic individuals have a lack of trust in their current organization, emotional instability, high social anxiety and a tendency to be anxious and suspicious. Therefore, when the organization violates promises or the neurotic individual feels let down, this type of individual reacts strongly by way of decreased- satisfaction, intention to remain and performance (Raja et al., 2011). Furthermore, individuals who are emotionally stable can handle stress well, which may increase their feeling of satisfaction with both career and job.

The individuals, possessing the openness personality trait, are considered to have a wide range of interests, unusual thought processes and are aesthetically reactive. Further, these individuals are curious about many things, come up with new and original ideas and value intellectual matters (McCrae and John, 1992). They use their creativity and innovation to meet the demands of the job (Raja et al., 2011). IT is an ever-changing area and requires the replenishment of professionals' abilities and knowledge. Therefore, openness to new

experiences leads IT professionals to endeavour to learn new things in the IT field, which in turn affects job satisfaction in the short run and career satisfaction in the long run.

Extraverts display a higher degree of talkativeness, assertiveness and sociability with a rapid personal tempo and facially expressive activities (McCrae and John, 1992). Extraverts feel an emotional bond with their organization. Therefore, when the organization does something that affects this intense and emotional attachment, extraverts feel more upset (Raja et al., 2011). On the other hand, the extraverts are happy in life and there by happy in their jobs (Judge et al., 2002), which means satisfaction with their career progression.

As a result personality precedes the satisfaction with the job and career, because the perspective of individual development is affected with the personality (Lounsbury et al., 2004). Furthermore, personality traits “play a role in the development of career-self efficacy by impacting the kinds of learning experiences people acquire” (Nauta, 2004). Several studies also confirmed the significant effect of personality traits on job satisfaction (Judge et al., 2002; Bruk-Lee et al., 2009; Lounsbury et al., 2007), on career satisfaction (Lounsbury et al., 2004; Lounsbury et al., 2007) and on career self-efficacy (Nauta, 2004; Hartman and Betz, 2007). Judge et al. (2002) analyze the relationship between the personality traits and overall job satisfaction with a meta-analysis. According to the results, job satisfaction has a negative correlation with neuroticism, and a positive correlation with extraversion, agreeableness and conscientiousness. Furthermore, they have concluded that the link between job satisfaction and both neuroticism and extraversion can be generalized across studies. Bruk-Lee et al. (2009) conduct a similar study with Judge et al. (2002) and found that neuroticism has the highest effect on job satisfaction amongst the five traits, and conscientiousness and openness to experience are found to have lesser effects. Lounsbury et al. (2007) found that emotional resilience (the converse of neuroticism) and teamwork disposition (agreeableness) have positive effects on job satisfaction and career satisfaction. Among the factors, emotional resilience is the personality trait most highly correlated with both career and job satisfaction. Lounsbury et al. (2004) analyzed the effects of personality traits on both career satisfaction and life satisfaction of librarians and information science professionals. In this study, they reduce the dimensions of personality traits to two factors: “extraversion, optimism, assertiveness, openness and emotional stability” in Factor 1, and “conscientiousness and tough mindedness” in Factor 2. Three traits of the five-factor model of personality - extraversion, openness and emotional stability - have found to be significantly linked to career satisfaction, but not life satisfaction. On the other hand, conscientiousness and tough mindedness have significant links both to career satisfaction and life satisfaction. Nauta (2004) revealed a significant relationship between extraversion and the artistic, social, and enterprising career self-efficacy; between agreeableness and both social and enterprising self-efficacy; between neuroticism and both investigative and enterprising self-efficacy; and between conscientiousness and social, enterprising and conventional self-efficacy. Hartman and Betz (2007) found that “conscientiousness and extraversion are the robust positive predictors of career-related self-efficacy”, whereas neuroticism has a negative relationship. Therefore, the following hypotheses are proposed:

H7 (a-e): Five-factor model of personality --- (a) conscientiousness-positively, (b) neuroticism-negatively, (c) extraversion-positively, (d) openness to experience- positively, (e) agreeableness-positively --- has an effect on job satisfaction.

H8 (a-e): Five-factor model of personality --- (a) conscientiousness-positively, (b) neuroticism-negatively, (c) extraversion-positively, (d) openness to experience- positively, (e) agreeableness-positively --- has an effect on career satisfaction.

H9 (a-e): Five-factor model of personality --- (a) conscientiousness-positively, (b) neuroticism-negatively, (c) extraversion-positively, (d) openness to experience- positively, (e) agreeableness-positively --- has an effect on career self-efficacy.

METHODOLOGY

In the current study, a questionnaire was designed to collect data. The questionnaire items were derived from the existing literature related with the personality traits (John et al., 2008; John et al., 1991; Benet-Martinez and John 1998), job satisfaction (LeRouge et al.,2006), career satisfaction, career commitment (Fu, 2011), career self-efficacy (Kossek et al., 1998) and turnover intention (Firth et al., 2004). In the first part of the questionnaire, questions related with the demographic profiles of the respondents were asked. The target population comprised the professionals working in the area of IT. A web based survey is prepared to contact with potential participants, who are the members of Istanbul Chamber of Industry. A total of 513 responses were collected. Among the responses, 65 of them included incomplete answers and 18 of the respondents answered the intentionally left blank question. Thereby, the final sample included 430 completed responses for the analysis. The demographic profile of the respondents is presented in Table 1.

Table 1: Demographic Profile of the Respondents

Gender (%)	Female: 29.7	Male: 70.3		
Age (%)	20-29 years:53.7	30-39 years: 36.4	40-49 years: 6.1	≥50years: 3.8
Education level (%)	Ph.D. :1.6	Masters degree: 26.8	Undergraduate: 55.1	
	Two-year degree: 10.4	High school: 6.1		
Position (%)	Top management: 4.2	Middle management: 17.9	Engineer/Expert: 56.5	
	Technical: 13.7	Other: 7.7		
Work experience in a full time position (%)	<6 months: 2.1	6 months≤...<1 year: 4.5	1 year≤...<2 years: 9.4	
	2 years ≤...≤ 5 years: 32.1	>5 years: 51.9		
Working years in current company (%)	<6 months: 7.6	6 months≤...<1 year: 11.7	1 year≤...<2 years: 14.5	
	2 years ≤...≤ 5 years: 30.2	>5 years: 36.0		
Industry (%)	Information technology: 52.3	Automotive: 3.0		
	Electronics: 17.7	Energy: 2.1		
	Banking and finance: 10.0	Chemical: 1.6		
	Telecommunication: 4.7	Service: 1.4		
		Other: 7.2		

In the second section, respondents were asked to specify their agreement level to the items in the research model. All the constructs except turnover intention was measured by a five-point Likert scale representing one “strongly disagree” and five “strongly agree”. Turnover intention was measured by two items: “How often do you think about leaving the job?”, 1 representing “rarely or never” and 5 representing “very often” --- “How likely are you to look for a new job recently?”, 1 representing “very unlikely” and 5 representing “very likely”. The details of the items are given in Appendix A.

RESULTS

Measurement model

Confirmatory factor analysis (CFA) was used to test the reliability and validity of the constructs defined in the research model. Since career commitment has dimensions, a second-order CFA was performed for the validity of the career commitment.

First-order factor model

First-order CFA was used to evaluate the first-order factor model. The initial analysis proved that the model did not provide a satisfactory fit, means requirement of the changes in the model. The standardized factor loadings of the items were examined. Items with loadings lower than 0.7 were dropped from the measurement model one by one in sequence. The decision to extract an item from the measurement model is taken if the content and theory allow for the particular changes (Anderson and Gerbing, 1988). The items dropped for further analysis are shown with an asterisk in Appendix A.

The revised measurement model was rerun and the fit statistics showed that the model provided a satisfactory fit to the data. According to the results, the absolute fit indices (RMSEA=0.044, SRMR=0.049), incremental fit indices (NFI=0.95, CFI=0.98), and χ^2/df (at 1.75) have better values than the recommended values (Hair et al., 1998). This result demonstrated a good fit between the data and the first-order factor model.

The second step is performing the convergent- and discriminant validities of the constructs. Convergent validity of the items was assessed by *t*-values, standardized factor loadings (SFL), composite reliability, and average variance extracted (AVE), as shown in Table 2. First, the *t*-statistics (*t*-value>1.96) showed that all the standardized factor loadings in the measurement model- are significant and exceeded the recommended value of 0.7 (Hair et al., 1998). Furthermore, the AVE values of the constructs in the research model range from 0.54 to 0.72, having better results than the recommended value of 0.50 (Fornell and Larcker, 1981). Besides, all the composite reliabilities are greater than the recommended threshold value of 0.6 (Diamantopoulos and Siguaw, 2000). These results confirmed the convergent validity of the first-order factor model.

Table 2: First-order confirmatory factor analysis

Construct	Item	SFL	t-statistics	Construct	Item	SFL	t-statistics	
Career satisfaction (CSAT)	CSAT1	0.77	18.39	Extraversion (EXT)	EXT1	0.80	19.05	
	CSAT3	0.85	21.45		EXT2	0.80	19.32	
	CSAT4	0.75	17.82		EXT5	0.78	18.64	
	CSAT5	0.93	24.79		EXT7	0.75	17.60	
Job satisfaction (JSAT)	JSAT1	0.90	23.51		EXT8	0.73	16.80	
	JSAT2	0.71	16.61		Agreeableness (AGG)	AGG1	0.70	16.08
	JSAT3	0.76	18.40			AGG2	0.78	18.43
	JSAT4	0.90	23.95			AGG3	0.72	16.70
	JSAT5	0.78	19.69	AGG5		0.74	17.33	
JSAT7	0.79	19.27	AGG7	0.81		19.48		
Career self-efficacy (CSE)	CSE1	0.70	15.81	Conscientiousness (CONS)	AGG8	0.71	16.29	
	CSE2	0.74	17.34		CONS1	0.70	15.68	
	CSE5	0.77	18.37		CONS2	0.79	18.89	
	CSE6	0.75	17.80		CONS4	0.77	18.29	
	CSE8	0.73	17.06		CONS5	0.78	18.65	
	CSE10	0.73	17.04		CONS8	0.73	16.82	
Career identity (CCI)	CSE11	0.72	16.82		CONS9	0.77	18.30	
	CCI1	0.83	19.65		Neuroticism (NEU)	NEU2	0.73	16.78
	CCI2	0.76	17.35			NEU3	0.77	17.94
CCI3	0.83	19.68	NEU5	0.76		17.77		
Career planning (CCP)	CCP1	0.82	19.58	NEU7		0.77	18.15	
	CCP2	0.85	20.64	NEU8		0.76	17.59	
	CCP3	0.75	17.11	Openness to experience (OPE)	OPE1	0.79	18.76	
Career resilience (CCR)	CCR1	0.75	16.90		OPE3	0.72	16.43	
	CCR2	0.81	18.96		OPE4	0.75	17.33	
	CCR3	0.84	19.82		OPE5	0.84	20.78	
Turnover intention (TI)	TI1	0.87	19.36		OPE8	0.72	16.37	
	TI2	0.83	18.35					
Construct	AVE	Composite reliability	Cronbach's α	Construct	AVE	Composite reliability	Cronbach's α	
Career satisfaction	0.69	0.90	0.89	Extraversion	0.60	0.88	0.88	
Job satisfaction	0.66	0.92	0.92	Agreeableness	0.55	0.88	0.88	
Career self-efficacy	0.54	0.89	0.89	Conscientiousness	0.57	0.89	0.89	
Career identity	0.65	0.85	0.85	Neuroticism	0.57	0.87	0.87	
Career planning	0.65	0.85	0.85	Openness to experience	0.59	0.88	0.87	
Career resilience	0.64	0.84	0.84					
Turnover intention	0.72	0.84	0.84					

Finally, discriminant validity of the first-order factor model was evaluated by comparing the AVEs of each construct with the correlation between that construct and all the remaining constructs in the research model (Fornell and Larcker, 1981). As shown in Table 3, the smallest square root of AVEs (0.73) for CSE is higher than the maximum correlation (0.60) between CCP and CSE. This result demonstrated adequate discriminant validity.

Table 3: Discriminant validity

	Mean	S.D.	EXT	AGG	CONS	NEU	OPE	CSAT	JSAT	CSE	CCR	CCI	CCP	TI
EXT	3.70	0.77	0.77											
AGG	4.22	0.64	0.36	0.74										
CONS	3.85	0.70	0.35	0.58	0.76									
NEU	2.47	0.80	-0.34	-0.58	-0.48	0.76								
OPE	3.86	0.69	0.55	0.46	0.44	-0.38	0.77							
CSAT	3.13	0.92	0.01	0.03	0.06	-0.14	0.02	0.83						
JSAT	3.80	0.77	0.21	0.31	0.29	-0.29	0.32	0.39	0.81					
CSE	4.23	0.59	0.39	0.52	0.57	-0.40	0.54	0.04	0.46	0.73				
CCR	3.62	0.78	0.20	0.28	0.37	-0.29	0.28	0.04	0.30	0.53	0.80			
CCI	3.75	0.74	0.16	0.19	0.24	-0.21	0.28	0.28	0.49	0.36	0.29	0.81		
CCP	3.86	0.84	0.36	0.27	0.33	-0.31	0.46	0.19	0.41	0.60	0.49	0.38	0.81	
TI	2.20	0.93	-0.19	-0.26	-0.23	0.28	-0.20	-0.35	-0.61	-0.34	-0.30	-0.32	-0.31	0.85

The diagonal values are square roots of the AVEs of the constructs. Off diagonal values are the correlations between the constructs

Second-order factor model

To confirm the multidimensionality for the construct of career commitment, a second-order CFA was conducted to evaluate the relationship between the three first order constructs (CCR, CCI, CCP) and a second order factor, career commitment. The results indicated that all the fit indices for the career commitment represent a reasonably good fit to the data ($\chi^2=52$ ($p < 0.00$), $df=24$, $RMSEA=0.051$, $NFI=0.98$, $CFI=0.99$, $SRMR=0.037$). Further all the paths are significant ($t > 1.96$) and all the first-order standardized factor loadings of the items are greater than the recommended value of 0.70 (Hair et al., 1998). Therefore, it can be concluded that the relationship between career commitment and three constructs (CCI, CCP, CCR) were confirmed with the data.

Table 4: First-order and second-order CFA of career commitment (CC)

Dimensions	Items	First order		Second order	
		Standardized factor loadings	t-value	Gamma coefficients	t-value
Career identity	CCI1	0.84	i^a	0.46	6.91*
	CCI2	0.77	16.34*		
	CCI3	0.81	17.05*		
Career planning	CCP1	0.82	i^a	0.80	8.82*
	CCP2	0.86	17.75*		
	CCP3	0.74	15.88*		
Career resilience	CCR1	0.74	i^a	0.62	7.74*
	CCR2	0.83	15.47*		
	CCR3	0.83	15.52*		

Chi-square = 52 ($p < 0.00$); $df = 24$; $RMSEA = 0.051$; $NFI = 0.98$; $CFI = 0.99$; $SRMR = 0.037$

^a Fixed parameter; * $p < 0.001$

Structural model

The structural model verifies the relationships defined in the research model. The results indicated that all the fit indices have better values than the recommended values ($\chi^2/df=2.38$, RMSEA=0.061, CFI=0.96, NFI=0.93, SRMR=0.066) (Hair et al., 1998). This demonstrated that the model achieved a good fit with the data.

Figure 2 shows the standardized path coefficients and significance levels along with the explanation rates (R^2). The results indicated that 38% of turnover intention is explained by both career commitment and job satisfaction. Another result indicated that job satisfaction, career satisfaction and career self-efficacy are significant predictors of career commitment. The other results revealed the significant effects of job satisfaction and neuroticism on career satisfaction. Furthermore, among the five-factor model of personality traits, openness to experience, agreeableness and conscientiousness have positive effects on career self-efficacy.

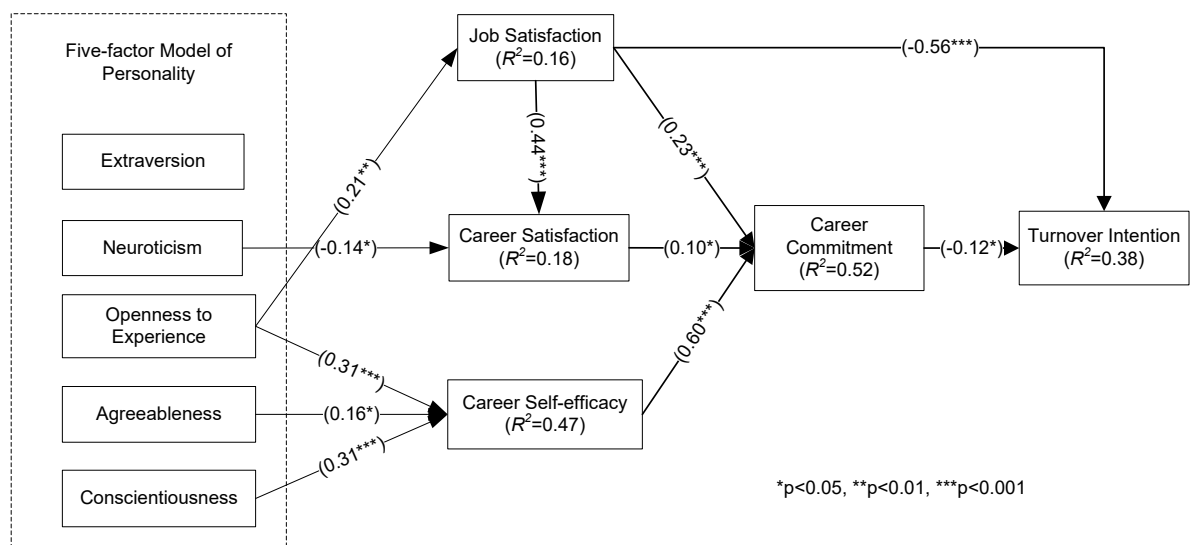


Fig. 2. Results of the research model

Structural equation modelling also allows finding indirect and total effects of each construct. As shown in Table 5, the results revealed that among the personality traits, conscientiousness and openness to experience negatively affect turnover intention together with job satisfaction, career self-efficacy and career commitment. Whereas the total effects of neuroticism, agreeableness, extraversion and career satisfaction on turnover intention are found to be insignificant. Furthermore, agreeableness, conscientiousness and openness to experience have significant indirect effects on career commitment.

Table 5: Total effects of the constructs on turnover intention and career commitment

	Turnover Intention			Career commitment		
	Direct	Indirect	Total	Direct	Indirect	Total
Neuroticism	-	insig.	insig.	-	insig.	insig.
Agreeableness	-	insig.	insig.	-	0.11*	0.11*
Conscientiousness	-	-0.08*	-0.08*	-	0.21**	0.21**
Extraversion	-	insig.	insig.	-	insig.	insig.
Openness to experience	-	-0.14**	-0.14**	-	0.23**	0.23**
Job satisfaction	-0.56**	-0.03*	-0.59**	0.23**	0.04*	0.27**
Career satisfaction	-	insig.	insig.	0.10**	-	0.10**
Career self-efficacy	-	-0.07*	-0.07*	0.60**	-	0.60**
Career commitment	-0.12*	-	-0.12*	-	-	-

insig.: insignificant relationship; *p<0.05; **p<0.001

CONCLUSION AND DISCUSSION

This study yielded important insights into understanding how the five-factors of personality traits influence job satisfaction, career satisfaction, career self efficacy and eventually career commitment and turnover intention among IT professionals in Turkey. The results suggest that career commitment and job satisfaction both have a direct effect on turnover intention. Among the factors considered, job satisfaction is found to have the strongest direct and indirect effect on turnover intention. Therefore, companies need to take precautions to ensure that their employees’ satisfaction and career commitment are adequately addressed if they wish to keep their qualified human resource level stable. Job satisfaction may be enhanced with improvements in the context of the job, that is, the more fascinating, satisfying, creative, useful and challenging jobs are then the lower the turnover rate will be. Similar to our findings, according to a meta-analysis conducted by Zimmerman (2008), job satisfaction is the sole predictor of turnover intention, and both intention to quit and performance explain turnover. A meta-analysis of Griffeth et al. (2000) also revealed that turnover is predicted by various job attitudes, however job satisfaction is the best predictor, and furthermore there are many facets of satisfaction which show high correlation with turnover.

Another result suggests that conscientiousness has a negative indirect effect on turnover intention. For contractual forces, highly conscientious individuals believe in that they have moral/ethical obligation (Zimmerman, 2008) to their organization, since they are considered as reliable workers. Furthermore, conscientious individuals tend to be organized, make plans and follow them through, according to their plans, their current occupation is one of the steps that they have to achieve. That is why, the turnover rate among conscientious individuals is found to be lower. Similar to our findings, Zimmerman (2008) found that emotional stability was found to have strongest correlation with intent to quit, followed by conscientiousness and extraversion.

Another result revealed that, openness to experience is found to have a positive direct effect on both job satisfaction and career self-efficacy and a negative indirect effect on turnover intention. That is, IT is an ever-changing and developing area and IT professionals should be aware of and receptive to change and, take steps to improve their talents and knowledge. Therefore, continuing education and professional growth, gaining experience through new duties and working with different groups may be considered as being open to experience. An employee, who is closed to new ideas and experiences and has a resistance to changes in the IT field, may not be satisfied with their current job in the long term (Lounsbury et al., 2007). On the other hand, skills-related issues such as “keeping up with technological changes, fear of obsolescence” were considered as factors contributing to burnout in IT (Pawlowski et al., 2007). Similar to our finding, in which, openness to experience has a negative effect on turnover intention, Santos et al. (2016) found the significant effects of extroversion and openness to experience on work-related burnout among Malaysian human-resources professionals. Another study conducted by Agrawal et al. (2012) concluded that IT professionals prefer not to work for longer periods on similar projects due to the “lack of growth and learning opportunities”. Thereby, they try to look for a way to leave the project when they have learnt everything they wanted to learn. Since these personality types prefer not to work in a routine way, they like to reflect and play with ideas, and they are inventive, the nature of the job will be a critical factor in their decision to quit a job. By making the work more challenging, adding more responsibility and providing a greater variety through job enlargement, job enrichment and job rotation activities, the feeling of self-esteem and thus self-fulfilment for employees will likely to be increased (Freivalds and Niebel, 2009).

A further result suggests that individuals, who feel confident in themselves about their career, stay in their current job instead of quitting and see their current job as an opportunity to progress their career. A strong need for growth is related to “personal development and the realization of one’s potential”, this may influence an employee’s turnover intentions in a rapidly changing environment. Since individuals should first realize their abilities and then fulfil the requirements of the industry. Otherwise, a high rate of turnover among IT professionals is unavoidable (Lee, 2000). Similar to our findings, Klassen and Chiu (2011) explored the significant effect of self-efficacy for instructional strategies on intention to leave the profession through occupational commitment.

Neuroticism, which is the converse of emotional stability, is the only predictor of career satisfaction; furthermore the effect of neuroticism on the other variables is found to be insignificant. Neurotic individuals generally feel depressed, tense, emotionally unstable and moody; they get nervous easily and worry a lot. When this type of personality is linked with job stress, encountered frequently among IT professionals, the level of stress felt is perceived as more intense by neurotic individuals. This will decrease the satisfaction level of the IT professionals with their career and thereby the desire to continue in their current career.

Three of the five personality traits, the exceptions being extraversion and neuroticism, have indirect positive effects on career commitment. Partially similar to our finding, Lounsbury

et al. (2012) found that emotional stability, extraversion, openness, agreeableness/teamwork were correlated with career satisfaction together with narrow traits such as assertiveness, optimism and work drive. Another study conducted by Arora and Rangnekar (2016) revealed the interaction effects of both conscientiousness and agreeableness on the three dimensions of career commitment- career identity, career resilience and career planning. Therefore, IT professionals who have personality traits such as agreeableness, conscientiousness and openness to experience demonstrate more commitment to their career.

Another result revealed that career satisfaction has an insignificant effect on turnover intention. This implies that employees working in IT related jobs do not intend to quit their job even when they are not satisfied with- the success they have achieved, the progress they have made, the rate of promotion they have attained, their pay level or status. In contrast to our findings, Joo and Park (2010) explored that organizational learning culture, career satisfaction and organizational commitment predict turnover intention among Four Fortune Global companies in Korea. This can be explained by the differences between IT employees and those employees not working in IT related jobs. The finding of this study indicates that factors other than career satisfaction may be found to be more important in influencing turnover decisions amongst IT professionals.

The effect of extraversion is found to be insignificant on career satisfaction, job satisfaction and career self-efficacy. In contrast to our findings, Lounsbury et al. (2012) conducted a research to investigate whether there is a difference in terms of personality traits between physical scientists and non-scientists, and found that extravert scientists have higher levels of career satisfaction. However, it is well known that IT professionals have specific characteristics that differ from those in other occupations such as: they are found to be more introvert than extravert, and their personality type is a combination of introversion, sensing, thinking and judging. That is, they prefer to work with facts rather than interact with people. So they can be considered as more technically oriented (Beechem et al., 2008). That is why; the personality trait of extraversion may not be so important for the achievement of both job and career satisfaction and indirectly in influencing the turnover decision.

Practical implications

Based on the findings of this study, several implications will be recommended to companies employing IT professionals. Since the five-factor model of personality traits were found to predict job and career satisfaction and further career commitment and turnover intention, personality tests can be used in the recruitment process of employees in order to reduce staff turnover. During the application stage, applicants' personality information can be derived in addition to their curriculum vitae. First, it would be advisable to recruit IT professionals who have the personality traits of openness to experience and conscientiousness. Since professionals, who have this kind of personality, prefer to stay in their current job and are thus less likely to look for a new job. This approach may slow down the rate of turnover among IT professionals. Second, openness to experience increases job satisfaction and self-efficacy in

career. Recruiting an employee who has these characteristics is important since they are the main predictors of turnover intention and turnover behaviour in the future. Furthermore, openness to experience is also related with artistic and aesthetic experiences, companies may organise regular social events for their employees such as art exhibitions and musical programs to increase employee satisfaction levels.

Furthermore, job satisfaction is found to be the strongest predictor of turnover intention together with career commitment. A satisfied employee will have greater commitment to his/her career. That is, any improvement in the content of a job may increase the feeling of satisfaction. Therefore, instead of just allocating the same or routine types of work, managers may also assign challenging tasks to their employees. Further, under the direction of management an employee survey may be conducted to identify significant factors which would enhance employees' job satisfaction. A two-way open dialogue between the management and the employees may increase the feeling among employees that management values them. Besides, career planning activities can be conducted in the departments of the company to increase the commitment level of employees to their careers, and indirectly to degrade the turnover rate.

Future studies

First, both job satisfaction and career commitment account for only 38% of turnover intention. Therefore, approximately 62% of turnover intention remained unexplained, suggesting the need to add additional variables to future studies. Job stress, being a commonly encountered problem among IT professionals, may be added to the research model. Several studies also explored the relationship between personality traits- and both job stress and job satisfaction. Tokar et al. (1998) found that those people with a Type A personality (high conscientiousness and high neuroticism) experienced greater job stress and eventually lower job satisfaction. Second, as a further study, this study may be extended to non-IT employees. This would enable an understanding to be gained as to whether there is a difference in terms of perceptions between IT employees and non-IT employees.

Appendix A: Measurement Instrument

Construct		Items
Turnover intention (TI)	intentionTI1	"How often do you think of leaving your present job?"
	TI2	"How likely are you to look for a new job within the next year?"
Career self-efficacy (CSE)	CSE1	"When I make plans for my career, I am confident I can make them work"
	CSE2	"If I can't do a job the first time, I keep trying until I can"
	CSE3	"When I set important career goals for myself, I rarely achieve them"(R)*
	CSE4	"When I have something unpleasant to do that will help my career, I stick with it until I am finished"*
	CSE5	"I avoid facing career difficulties"(R)
	CSE6	"When trying to learn something new on my job, I soon give up if I am not initially successful"(R)
	CSE7	"When I decide to do something about my career, I go right to work on it"*
	CSE8	"I avoid trying to learn new things that look too difficult for me"(R)
	CSE9	
	CSE10	

	CSE11	"I feel insecure about my ability to get where I want in this company"(R)* "I rely on myself to accomplish my career goals" "I do not seem capable of dealing with most problems that come up in my career"(R)
Career Identity (CI)	CCI1	"IT profession is an important part of who I am"
	CCI2	"I do not feel "emotionally attached" to a career in IT profession"(R)
	CCI3	"I strongly identify with the idea of career in IT profession"
Career Planning (CP)	CCP1	"I have created a plan for my development as an IT professional"
	CCP2	"I do not have strategy for achieving my career goals in IT profession"(R)
	CCP3	"I have not identified specific goals for my own personal development as an IT professional"(R)
Career Resilience (CR)	CCR1	"Given the problems I encounter in IT profession, I sometimes wonder if I get enough out of it"(R)
	CCR2	
	CCR3	"Given the problems in IT profession, I sometimes wonder if the personal burden is worth it"(R) "The discomforts associated with IT profession sometimes seem too great"(R)
Job Satisfaction (JSAT)		"I would describe my work as..."
	JSAT1	"fascinating"
	JSAT2	"routine"(R)
	JSAT3	"satisfying"
	JSAT4	"good"
	JSAT5	"creative"
	JSAT6	"giving a sense of accomplishment"*
	JSAT7	"useful"
	JSAT8	"frustrating"(R)*
	JSAT9	challenging"(R)*
Career Satisfaction (CSAT)		I am satisfied with the...
	CSAT1	"success I have achieved in my career"
	CSAT2	"progress I have made toward achieving my overall career goals"*
	CSAT3	"my rate of promotion during my career"
	CSAT4	"pay level I have achieved during my career"
	CSAT5	"status that I have achieved during my career"
Extraversion (EXT)	EXT1	"Is talkative"
	EXT2	"Is reserved"(R)
	EXT3	"Is full of energy"*
	EXT4	"Generates a lot of enthusiasm"*
	EXT5	"Tends to be quiet"(R)
	EXT6	"Has an assertive personality"*
	EXT7	"Is sometimes shy, inhibited"(R)
	EXT8	"Is outgoing sociable"
Agreeableness (AGG)	AGG1	"Tends to find fault with others"(R)
	AGG2	"Is helpful and unselfish with others"
	AGG3	"Starts quarrels with others"(R)
	AGG4	"Has a forgiving nature"*
	AGG5	"Is generally trusting"
	AGG6	"Can be cold and aloof"(R)*
	AGG7	"Is considerate and kind to almost everyone"
	AGG8	"Is sometimes rude to others"(R)
	AGG9	"Likes to cooperate with others"*
Conscientiousness (CONS)	CONS1	"Does a thorough job"
	CONS2	"Can be somewhat careless"(R)
	CONS3	"Is a reliable worker"*
	CONS4	"Tends to be disorganized"(R)
	CONS5	"Tends to be lazy"(R)
	CONS6	"Perseveres until the task is finished"*

	CONS7	"Does things efficiently"*
	CONS8	"Makes plans and follows through with them"
	CONS9	"Is easily distracted"(R)
Neuroticism (NEU)	NEU1	"Is depressed, blue"*
	NEU2	"Is relaxed, handles stress well"(R)
	NEU3	"Can be tense"
	NEU4	"Worries a lot"*
	NEU5	"Is emotionally stable, not easily upset"(R)
	NEU6	"Can be moody"*
	NEU7	"Remains calm in tense situations"(R)
	NEU8	"Gets nervous easily"
Openness (OPE)	OPE1	"Is original, comes up with new ideas"
	OPE2	"Is curious about many different things"*
	OPE3	"Is ingenious, a deep thinker"
	OPE4	"Has an active imagination"
	OPE5	"Is inventive"
	OPE6	"Values artistic, aesthetic experiences"*
	OPE7	"Prefers work that is routine"(R)*
	OPE8	"Likes to reflect, play with ideas"
	OPE9	"Has few artistic interests"(R)*
	OPE10	"Is sophisticated in art, music, or literature"*

(R):Reverse coded

*:Items dropped

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