

Chavis Ketkaew; Orasa Manglakakeeree; Phaninee Naruetharadhol

## Article

# The interrelationships of work-related factors, person-environment fit, and employee turnover intention

Cogent Business & Management

## Provided in Cooperation with:

Taylor & Francis Group

*Suggested Citation:* Chavis Ketkaew; Orasa Manglakakeeree; Phaninee Naruetharadhol (2020) : The interrelationships of work-related factors, person-environment fit, and employee turnover intention, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 7, Iss. 1, pp. 1-26,  
<https://doi.org/10.1080/23311975.2020.1823580>

This Version is available at:

<https://hdl.handle.net/10419/244952>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by/4.0/>

# The interrelationships of work-related factors, person-environment fit, and employee turnover intention

Chavis Ketkaew, Orasa Manglakakeeree & Phaninee Naruetharadhol |

To cite this article: Chavis Ketkaew, Orasa Manglakakeeree & Phaninee Naruetharadhol | (2020) The interrelationships of work-related factors, person-environment fit, and employee turnover intention, Cogent Business & Management, 7:1, 1823580, DOI: [10.1080/23311975.2020.1823580](https://doi.org/10.1080/23311975.2020.1823580)

To link to this article: <https://doi.org/10.1080/23311975.2020.1823580>



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.



Published online: 29 Sep 2020.



Submit your article to this journal [↗](#)



Article views: 1254



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 3 View citing articles [↗](#)



Received: 24 October 2019  
Accepted: 21 July 2020; Published

\*Corresponding author: Phaninee Naruetharadhol, Global Business, Khon Kaen University, Thailand  
E-mail: [phaninee@kku.ac.th](mailto:phaninee@kku.ac.th)

Reviewing editor:  
Joseph Amankwah-Amoah, Kent Business School, University of Kent, Canterbury, UK

Additional information is available at the end of the article

## MANAGEMENT | RESEARCH ARTICLE

# The interrelationships of work-related factors, person-environment fit, and employee turnover intention

Chavis Ketkaew<sup>1</sup>, Orasa Manglakakeeree<sup>1</sup> and Phaninee Naruetharadhol<sup>1\*</sup>

**Abstract:** Retaining human resources is essential for a company's competitiveness. Losing a high-capacity employee can hurt a company's performance. In this study, we investigate the inter-relationship among work-related factors, for instance, job stress, person-environment-fit, and quitting intention of employees in Thailand. Data were collected from 400 office workers in Bangkok, Thailand, utilizing structured questionnaires derived from the conceptual framework. The gathered data were analyzed using the structural equation modeling (SEM) approach. We found that work overload, role ambiguity, and role conflict, as mediated through job stress, would influence employee turnover intention. However, unlike the previous employee turnover intention model that factors were typically mediated through job stress, we found that higher responsibility and greater financial insecurity directly drive turnover intention (positively for financial insecurity but negatively for responsibility).

**Subjects:** Personnel Selection, Assessment, and Human Resource Management; Business, Management and Accounting; Human Resource Management; Human Resource Development; Asian Business

**Keywords:** work-related factors; person-environment fit; person-organization fit; person supervisor fit; person-job fit; person group fit; overload; role ambiguity; role conflict; responsibility; financial insecurity; turnover intention



Chavis Ketkaew

### ABOUT THE AUTHOR

Chavis Ketkaew is an assistant professor of management at the International College, Khon Kaen University, Thailand. He is the first author of this research project. His research interests include business management, behavioral economics, consumer research, market research, and business models.

Orasa Manglakakeeree is a bachelor degree student in Global Business, International College, Khon Kaen University, Thailand

Phaninee Naruetharadhol is an assistant professor of management at the International College, Khon Kaen University, Thailand. She is the principal investigator and plays a corresponding role in this research project. Her research interests involve organizational behavior, human resources management, financial planning, and innovation management.

### PUBLIC INTEREST STATEMENT

Increasing employee turnover typically decreases the performance of a firm. When employees resign, the firm must seek a replacement which incurs opportunity costs. Losing staff can lead to lower productivity because the replacement employees lack experience or are initially unfamiliar with the organization's goals and policies. Essentially, knowing factors determining an employee's quitting intention would allow a firm to create a human resources management policy that helps to conserve a quality employee, which could positively enhance the firm's performance in the long-term. The novelty of this paper is the development of a structural model explaining the causes of turnover intention based on a sample locating in Bangkok, Thailand.

## 1. Introduction

Many Thai people are now seeking new jobs as the unemployment rate in Thailand has increased during the past five years, from 0.45% in 2013 to 0.67% in 2018 (Thailand Unemployment Rate, 2018). At the same time, the country has several universities that produce new graduates yearly. Also, we can assume that some people want to leave their current job. The decision to resign must be driven by some identifiable factors (e.g., desire to change profession, start a business, pursue growth opportunities, or switch companies). Because of its negative impacts on the company, employees quitting is a challenge for many companies. An increase in employee turnover typically reduces the performance of a firm, especially small companies with limited resources. When employees resign, the firm must seek a replacement (a costly process), which includes recruitment and training costs (Memon et al., 2017). Losing staff can lead to lower productivity because the replacement employees lack experience or are initially unfamiliar with the organization's goals and policies (Phonthanukitithaworn et al., 2017). It has been reported that the turnover of experienced employees tends to earn lower profit margins of firms in general (Hamel, 2018). Employees can leave an organization by resigning or by being fired. Here we will focus on employee turnover intention that is motivated by environmental factors and the nature of the work.

As a big picture, Thai wagedworkers, especially in Bangkok, seem to be satisfied with their work lives. However, they demonstrated a low level of organizational commitment due to the average job turnover rate every three years and six months per person (Research Center for Social And Business Development, 2018). To elaborate, the turnover rate for Generation Y was two years and five months, while Generation X was five years and five months. The research reported that the main reasons behind those turnovers were 1) willing to increase compensations and benefits and 2) willing to have job security, mediated through job stress. This turnover has led the researchers and managers to pose such questions as to why are Thai office workers, especially working in the urban area, leaving their jobs, and what can we do to stop them?

Empirical evidence suggested that employee turnover was accelerated by stress (Qureshi et al., 2012) but alleviated by fitted work environments (J.R. Edwards et al., 2006). Stress is a natural component of work and occurs in all occupations and all sizes of organizations. Companies affected by high-stress levels may incur high costs (e.g., because of absenteeism, poor performance, and employee turnover). Stress at work can lead to a state of dissatisfaction, which drives quitting intention (Qureshi et al., 2012). To avoid these negative consequences, the administrators must focus on employee stress and attempt to maximize employee satisfaction to decrease employee turnover.

However, better employee-environment fit produces better outcomes (J.R. Edwards et al., 2006). Typically, people who fit into a group will share beliefs, attitudes, interests, knowledge, and skills. The fit between the employees and the working environment can influence attitudes and behaviors, which can be expressed in job satisfaction and turnover intention. Therefore, understanding and identifying employee environment fit can help to reduce dissatisfaction and turnover rate.

Consequently, it has become of importance to explore the complex characteristics affecting the aspects of employee stress and fitted work environment, which induce urban office worker's turnover intention in more detail. Here we aimed to investigate how work-related and environmental factors affect turnover intention, where employee stress and fitted work environment were merged into one structural model. The paper also introduces an alternative way of explaining the complex issues surrounding the urban office worker's turnover intention incidents, which has been rarely explored in Thailand. This paper employed the structural equation modeling approach to develop the relationship between job-related variables. Primarily, we hypothesized that job stress expedited an individual's turnover intention, whereas the person-environment fit helped to reduce one's turnover intention.

## 2. Literature review

The factors that cause a worker to either stay or leave a company are essential for company competitiveness. When employees leave, a company may change in multiple ways. If the firm

would like to retain employees, it must understand the factors that influence turnover intention (Jha, 2009). Staff turnover can cost a company between 50% and 100% of that employee's salary, which may cover recruiting, interviewing, training, ramp-up time, and downtime.

In some cases, turnover can be positive, for instance, when a non-productive worker quits. This creates an opportunity for other people with superior skills to be hired or promoted. Savage (2010) reported that adequate compensation and benefits, and a supportive team environment are significant inspirational factors for employees.

### **2.1. Working environment**

The work environment is also crucial for employee retention because if employees are happy with the workplace and the levels of stress associated with their role, they are unlikely to be dissatisfied. Employee turnover may reduce when workers feel comfortable. Reducing stress and creating a supportive environment can increase a firm's productivity (Raziq & Maulabakhsh, 2015). The person-environment fit Scale (PEFS) can be used to design the proper environment to satisfy employees, reduce stress, and improve productivity. Jansen and Kristof-Brown have developed four forms of fit [person-supervisor fit scale (PSFS), person-group fit scale (PGFS), person-organization fit scale (POFS), and person-job fit scale (PJFS)] that can be combined to generate the multidimensional PEFS. The components of the PEFS help analyze the whole work environment of a company (Krishnan et al., 2017).

#### **2.1.1. Person-organization fit (POF)**

This concept focuses on the attraction between the people who are seeking a job and the organization. Following POF, an organization will hire people who have similar values to be their existing employees. Good POF can reduce employee turnover (Arthur et al., 2006). On the other hand, failure to match can lead to employees resigning.

#### **2.1.2. Person supervisor fit (PSF)**

Person-supervisor fit (PSF) refers to the compatibility between employees and their supervisors. Employees will tend to be happy at work when they have good relationships and interactions with their supervisors (Abbas et al., 2015).

#### **2.1.3. Person job fit (PJF)**

Person-job fit (PJF) is a combination of two kinds of work-related factors: demand abilities fit and need supplies fit. Good demand abilities fit reaches as an employee is working on a task that requires skills, knowledge, and skills that match the employee's potential. Need supplies are fulfilled when the company provides the employees with everything they need to perform well. This integration helps to understand the compatibility between employees and tasks they play in the organization (Abbas et al., 2015).

#### **2.1.4. Person group fit (PGF)**

Person-group fit (PGF) aligns employees into workgroups that use some team members' strengths to offset the weakness of other team members. Having a good relationship with the other people in a team can make communication among members more comfortable, leading to better performance. A study addressing PGF has reported that hiring people with similar personalities supports communications between employees and fosters social interaction (Abbas et al., 2015).

### **2.2. The relationship between stress and turnover intention**

Stressed employees negatively affect the organization and employee's health, such as worker's sickness, reduced productivity, staff turnover, and work accidents (Leontaridi & Ward, 2002). Mosadeghrad (2013) states that high levels of stress at work can increase absenteeism and lower productivity. Occupational stresses can harm a worker's physical and mental health. Lu et al. (2016) have reported that a large proportion of employees intending to quit their job cite high work stress as the principal reason. Mosadeghrad (2013) studied the levels of occupation stress,

influencing factors, and the relationship between stress and nurses' turnover intention among 296 Iranian nurses. Mosadeghrad found that stressors (e.g., workload, responsibility, salary, and role ambiguity) are linked with turnover intention.

Using some of the same stressors applied by Mosadeghrad, in this study, we investigate the link between stress and quitting intention by applying a person-environment-fit method. Many studies have addressed turnover intention and job stress, and all recommended reducing factors that cause stress to reduce turnover intention. Multiple factors have been identified as causing stress among employees, including overload, role ambiguity, role conflict, responsibility for people, and financial insecurity (Qureshi et al., 2012).

### **2.3. Work-related factors**

#### **2.3.1. Overload**

Overload refers to when one employee has too much work to handle. This situation occurs when a company is willing to meet its production needs, which forces employees to perform more tasks and stay late than usual. Ultimately, this will lead to employee health problems and low-quality work (Zkjadoon, 2017).

#### **2.3.2. Role ambiguity**

Role ambiguity refers to a lack of clarity in authority and information. Role ambiguity occurs when employees are uncertain about their responsibilities, duties, and specific activities (Role Ambiguity, n.d.).

#### **2.3.3. Role conflict**

Role conflict refers to when an employee must fulfill the duties of two different roles (Crossman, 2018).

#### **2.3.4. Responsibility**

Responsibility refers to the accountability to complete tasks associated with a role and the organization's goals. Having too much responsibility makes workers stressed, inducing anxiety, depression, and burnout (Gorica, 2017).

#### **2.3.5. Financial insecurity**

Wealth accumulation was the essential factor allowing a waged worker to contribute to retirement effectively in the long term (C. Ketkaew et al., 2019c). Insufficient wealth accumulation resulted from low financial attainment capacity (C. Ketkaew et al., 2020, 2019b) may cause financial insecurity. Financial insecurity refers to cases of insufficient monetary payment to meet an employee's needs, for instance, when an employee's expenses exceed their pay, they will be motivated to find better employment (Investopedia staff, 2018).

### **2.4. The relationship between person-environment (P-E) fit and stress**

Edwards and colleagues have proposed that stress occurs when the person and environment do not match (J. R. Edwards et al., 1998). The concepts of P-E fit are classified as complementary fit and supplementary fit. Complementary fit is when the environmental demands match the person's abilities. This concept means that the person has talents, skills, and skills that the organization requires, or the organization provides rewards that the person desires. Complementary fit is considered in research on psychological need fulfillment, which investigates how desires and the work environment influence a person's attitudes. Supplementary fit is when a person embellishes or possesses characteristics that match or are similar to the environmental features. This concept involves examining value congruence between employees and organizations, such as organizations that hire a person who has similar skills or characteristics as the current employees (J.R. Edwards et al., 2006).

P-E fit theory explains that person-environment mismatching can lead to psychological, physical, and behavioral stress. Psychological stress is characterized by feelings of being overwhelmed,

dissatisfaction, worry, anxiousness, sadness, anger, and being run-down. Physical stress is associated with low energy, high blood pressure, high serum cholesterol, compromised immune system functioning, and headache. Long-time stress leads to mental and physical illnesses, including heart disease, obesity, chronic depression, diabetes, gastrointestinal problems, and Alzheimer's disease. Similarly, good person-environment fit is associated with positive outcomes. Behavioral stress includes acts that are believed to help to reduce the level of stress, such as smoking, overeating, and absenteeism.

## 2.5. Hypotheses

Following the literature review, this research paper proposed nine hypotheses. The newly derived research framework, which explained the interplay among job stress, person-environment fit, and turnover intention, contributed to the academic arena regarding organizational behavior and human resources development (see Figure 1).

H1: Job stress (JS) influences turnover intention (TI).

H2: Person-environment fit (PEF) influences turnover intention (TI).

H3: Work overload (WO) influences job stress (JS).

H4: Role ambiguity (RA) influences job stress (JS).

H5: Role conflict (RC) influences job stress (JS).

H6: Responsibility (R) influences job stress (JS).

H7: Financial insecurity (FI) influences job stress (JS).

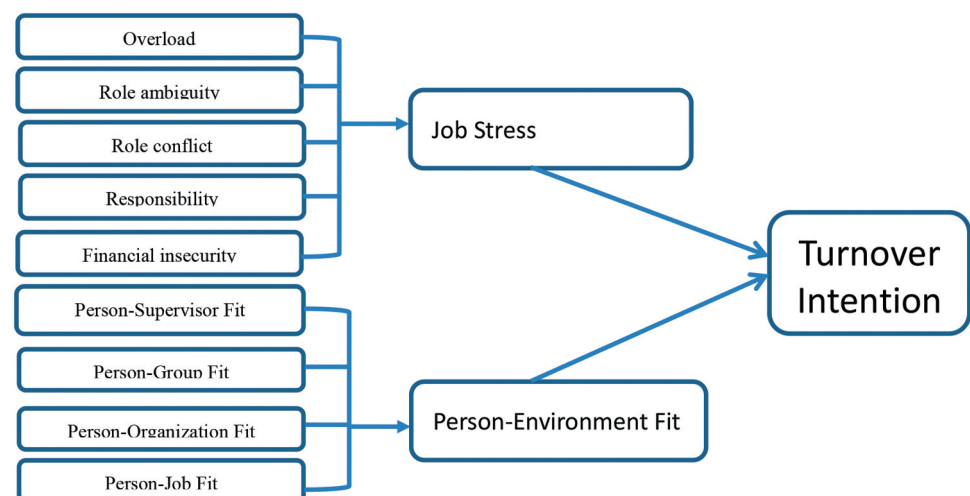
H8: Person-supervisor fit (PSF) influences person-environment fit (PEF).

H9: Person-group fit (PGF) influences person-environment fit (PEF).

H10: Person-organization fit (POF) influences person-environment fit (PEF).

H11: Person-job fit (PJF) influences person-environment fit (PEF).

**Figure 1. The research framework.** Source: Figure created by authors 2018.



### 3. Methodology

#### 3.1. Data gathering and sampling techniques

This study used a questionnaire to collect data. The items in the survey questionnaire were divided into two parts, 1) demographic information and 2) perception regarding work-related factors (see Appendix). The perception factors employed multiple-choice questions and 11 five-point Likert-scales, which provided ranked options about how much the respondents agree or disagree with a particular statement (see Appendix). The respondents include 400 office workers who were employed in Bangkok, Thailand, whereas the total population of office workers in Bangkok is ~4.8 million (International Labour Organization, 2018). As for sampling technique, this paper employed a multi-stage approach: quota sampling (C. Ketkaew et al., 2019a), then purposive sampling (C. Ketkaew et al., 2019b). First, we selected eight office areas with high population density along the subway and elevated train stations in Bangkok (Chong Nonsi, Ploenchit, Asok, Siame, Ari, Sala Daeng, Victory Monument, and Mo Chit) (Ketkaew & Naruetharadhol, 2016a). Of the 400 respondents, the researchers assigned a quota (Quota Sampling) of 50 office workers in each area to respond to the survey questionnaire. Next, trained surveyors purposively (Purposive Sampling) approached office workers who passed by the area using a screening question to determine whether they were office workers. If the answer was “Yes,” the surveyors would continue to let those office workers respond to the questionnaires. If “No,” the surveyors would stop the process. Before answering the inquiry, participants were informed of confidentiality agreements and the ethical considerations of business/social sciences research (Ketkaew & Naruetharadhol, 2016b).

The questions in the quitting intention section are taken from the research of Memon et al. (2017), which contained four statements to measure employee leaving intention. Questions from Qureshi et al. (2012) were used in the job stress and work overload sections. The items in the person-group fit sections were developed by Zhang et al. (2014). The questions in the person-job fit, person-organization fit, and person-supervisor fit sections are taken from the study by Hassan et al. (2012). The items in the person-environment fit section were developed by Vahidi et al. (2016). The financial insecurity questions are taken from the website of the Pew Research Center (The Politics of Financial Insecurity, 2017). The items in the section addressing responsibility are from the Huffpost website (Thompson, 2017). Table 1 provides the demographic information of the respondents.

Using the data cleansing approach suggested by Mahalanobis Distance (the method for multi-variate outlier detection), from the initial observations of 400, 379 observations were selected for further analysis.

#### 3.2. Data analysis

This study used structural equation modeling (SEM), a statistical technique that combined factor analysis and regression or path analyses to define causal relationships between observed and latent variables. Confirmatory Factor Analysis (CFA) was used to evaluate reliability and validity (Civelek, 2018).

### 4. Results and discussion

#### 4.1. Measurement model

Confirmatory Factor Analysis (CFA) was performed to develop the measurement model for the collected data. CFA includes several statistical tests to determine the relationship between the observed variables and the latent variables and to test whether the model adequately fits the data (Civelek, 2018). In this study, the goodness of fit indices employed were Chi-Square/df, CFI, IFI, TLI, and RMSEA.

**Table 1. Demographic information of respondents**

Demographic		Amount	Percentage
Gender	Male	166	41.5
	Female	234	58.5
	<b>Total</b>	<b>400</b>	<b>100</b>
Age	21–30	173	43.25
	31–40	121	30.25
	41–50	63	15.75
	51–60	36	9
	61 above	7	1.75
	<b>Total</b>	<b>400</b>	<b>100</b>
Education	High school	120	30
	Bachelor's degree	235	58.75
	Master's degree	26	6.5
	Ph.D.	9	2.25
	Diploma	10	2.5
	<b>Total</b>	<b>400</b>	<b>100</b>

Source: Data adapted from authors 2018.

Table 2 shows that all of the indices are accepted. Hence, the model is adequate for fitting the collected data according to the thresholds.

#### 4.1.1. Convergent validity

Convergent validity is a subtype of construct validity used to measure the correlation between the data of observed and latent variables (Civelek, 2018). Convergent validity is assessed using estimate values of the factor loading, average variance extracted (AVE), and construct reliability (CR).

Table 3 shows that the relationships between the observed variables and latent variables data are significantly related; the estimated values are higher than 0.70, AVE values are higher than 0.50, and CR values are higher than 0.70.

**Table 2. Goodness of fit indices of the measurement model**

Fit Indices	Value	Threshold	Assessment
Chi-Square	1,301.157		
df	595		
p-value	0.000		Acceptable for complex model
Chi-Square/df	2.187	<3.00	Pass
CFI	0.921	>0.90	Pass
IFI	0.922	>0.90	Pass
TLI	0.907	>0.90	Pass
RMSEA	0.056	<0.10	Pass

Source: Data adapted from authors 2018.

**Table 3. Convergent validity**

			Estimate	Threshold	AVE	Threshold	CR	Threshold
WO1	<—	WO	0.815	>0.70				
WO3	<—	WO	0.823	>0.70	0.671	>0.50	0.803	>0.70
RA1	<—	RA	0.822	>0.70				
RA2	<—	RA	0.849	>0.70				
RA3	<—	RA	0.787	>0.70				
RA4	<—	RA	0.802	>0.70	0.665	>0.50	0.888	>0.70
RC1	<—	RC	0.767	>0.70				
RC3	<—	RC	0.861	>0.70				
RC4	<—	RC	0.805	>0.70	0.659	>0.50	0.853	>0.70
R1	<—	R	0.883	>0.70				
R2	<—	R	0.782	>0.70	0.696	>0.50	0.790	>0.70
FI1	<—	FI	0.688	>0.70				
FI2	<—	FI	0.859	>0.70				
FI3	<—	FI	0.836	>0.70				
FI4	<—	FI	0.874	>0.70	0.668	>0.50	0.889	>0.70
PSF1	<—	PSF	0.847	>0.70				
PSF2	<—	PSF	0.788	>0.70				
PSF3	<—	PSF	0.733	>0.70				
PSF4	<—	PSF	0.819	>0.70	0.637	>0.50	0.875	>0.70
PGF1	<—	PGF	0.767	>0.70				
PGF2	<—	PGF	0.780	>0.70				
PGF4	<—	PGF	0.658	>0.70	0.543	>0.50	0.789	>0.70
POF2	<—	POF	0.833	>0.70				
POF3	<—	POF	0.827	>0.70				
POF4	<—	POF	0.835	>0.70	0.692	>0.50	0.871	>0.70

(Continued)

**Table 3. (Continued)**

			Estimate	Threshold	AVE	Threshold	CR	Threshold
PJF1	<—	PJF	0.842	>0.70				
PJF2	<—	PJF	0.825	>0.70				
PJF3	<—	PJF	0.756	>0.70	0.654	>0.50	0.850	>0.70
JS1	<—	JS	0.813	>0.70				
JS2	<—	JS	0.779	>0.70				
JS3	<—	JS	0.730	>0.70				
JS4	<—	JS	0.720	>0.70				
JS5	<—	JS	0.702	>0.70	0.562	>0.50	0.865	>0.70
PEF3	<—	PEF	0.743	>0.70				
PEF4	<—	PEF	0.843	>0.70	0.631	>0.50	0.773	>0.70
TI1	<—	TI	0.853	>0.70				
TI3	<—	TI	0.924	>0.70				
TI4	<—	TI	0.895	>0.70	0.794	>0.50	0.906	>0.70

Source: Data adapted from authors 2018.

#### 4.1.2. Discriminant validity

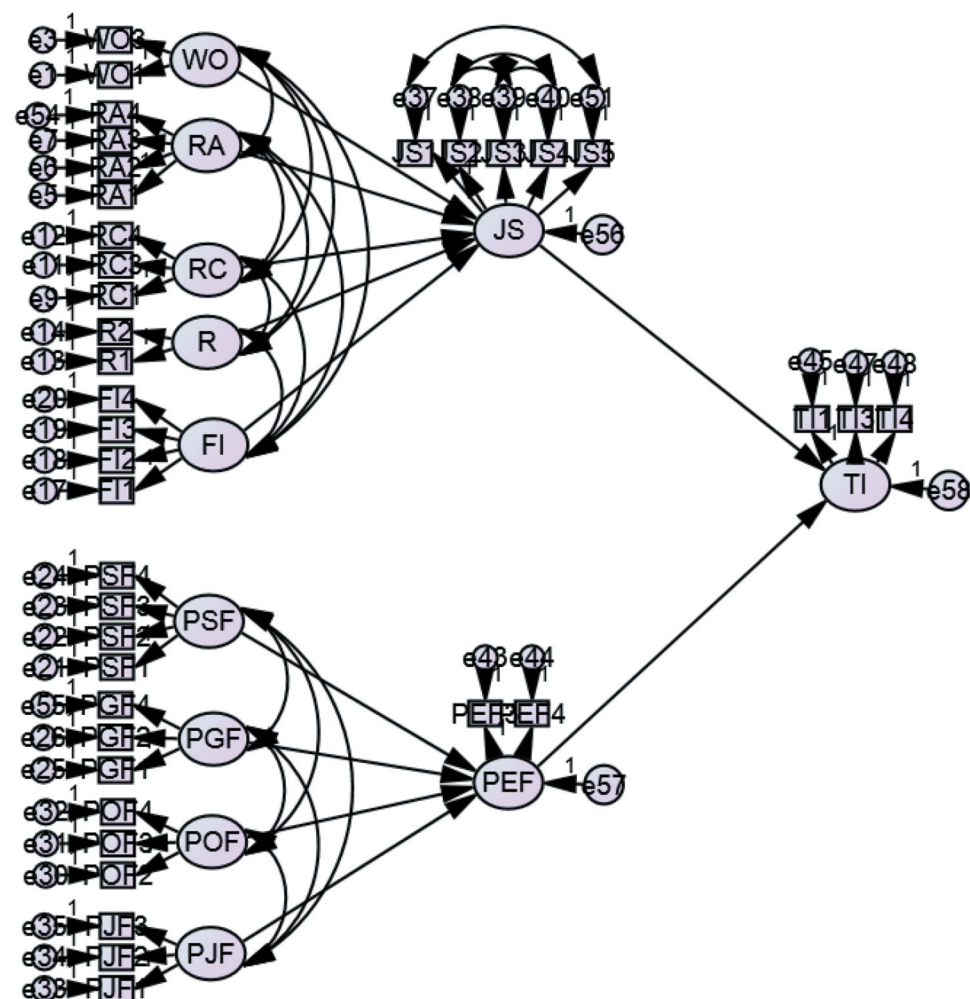
Discriminant Validity is another subtype of construct validity that indicates that there is no correlation between factors and data which are not constructed for each other. In other words, all the considering factors should be statistically discriminated from each other (Civelek, 2018).

To evaluate discriminant validity, Table 4 compares the squared root of average variance extracted (squared AVE) and the correlation estimates. This section was examined by comparing the square root AVEs (on diagonal) with the correlations in the associated matrices (Fornell & Larcker, 1981). According to Table 4, all constructs passed this validity check. The values in the table imply that the squared AVEs of the single factors are higher than the correlation estimates on all other factors.

#### 4.2. Structural model

Figure 2 demonstrates the structural model and Table 5 shows the goodness of fit indices (GFI) of the proposed structural model derived from the hypotheses. The results indicate that the person-environment fit is influenced by POF, PSF, PJF, and PGF. Person-environment fit and job stress influence quitting intention. The values in the table imply that this model does not adequately fit the data because CFI, IFI, and TLI are less than 0.9 (which do not pass the required thresholds).

Figure 2. Structural model.  
 Source: Figure created by authors 2018.



**Table 4. The squared AVE and correlation estimates**

	TI	PEF	JS	PJF	POF	PGF	PSF	FI	R	RC	RA	WO
TI	0.891											
PEF	-0.328	0.795										
JS	0.497	0.007	0.750									
PJF	-0.447	0.603	-0.157	0.809								
POF	-0.382	0.627	-0.132	0.676	0.832							
PGF	-0.133	0.282	-0.106	0.457	0.500	0.737						
PSF	-0.234	0.461	-0.172	0.525	0.501	0.305	0.798					
FI	0.474	-0.088	0.422	-0.265	-0.163	0.006	-0.031	0.818				
R	0.137	0.135	0.636	0.157	0.035	0.031	-0.124	0.210	0.834			
RC	0.415	-0.156	0.363	-0.278	-0.163	-0.084	-0.073	0.678	0.062	0.812		
RA	-0.254	0.445	0.080	0.573	0.450	0.385	0.349	-0.227	0.398	-0.366	0.815	
WO	0.284	0.122	0.719	0.022	-0.043	-0.048	-0.138	0.265	0.773	0.089	0.356	0.819

Source: Data adapted from authors 2018.

**Table 5. The goodness of fit indices of the original structural model**

Fit Indices	Value	Threshold	Assessment
Chi-Square	1,568.409		
df	634		
p-value	0.000		Acceptable for complex model
Chi-Square/df	2.474	<3.00	Pass
CFI	0.895	>0.90	Fail
IFI	0.785	>0.90	Fail
TLI	0.884	>0.90	Fail
RMSEA	0.062	<0.10	Pass

Source: Data adapted from authors 2018

The hypothesis testing results from Table 6 that financial insecurity (FI) does not significantly influence job stress (JS) because its p-value is 0.267, which is more than the given significance level of 0.01. PSF and PGF do not influence person-environment fit (p-values > 0.05). The results reveal that this model is not an adequate fit for the data. Therefore, to improve the model to fit the data, the SEM model was modified as follows.

Modification indices suggested the following changes to improve the model. Relate FI (independent variable) to TI (dependent variable) with the Modification Index (MI) of 21.936. Also, relate R (independent variable) to TI (dependent variable) with the MI of 6.683. As in Figure 3, the insignificant relationship was omitted in the modified model. The omitted relationships included PGF and PSF because their p-values were higher than 0.05. Hence the PGF construct was deleted from the modified structural model. Overall, the statistical results of the modified model became better, as explained in the next section.

#### 4.3. Modified structural model

After modifying the model, all of the fit indices pass the threshold, which indicates that the model in Figure 3 is accepted as having a highly good fit; the Chi-Square/df is less than 3.0, CFI is more than 0.9, IFI is more than 0.9, TLI is higher than 0.9, and RMSEA is higher than 0.9 (see Table 7).

**Table 6. Hypothesis test results of the original structural model**

				Estimate	Standardized Estimate	P	Hypothesis Test Results
JS	<—		WO	0.525	0.544	***	Support
JS	<—		RA	−0.129	−0.118	0.028**	Support
JS	<—		RC	0.225	0.237	***	Support
JS	<—		R	0.205	0.213	0.017**	Support
JS	<—		FI	0.074	0.073	0.267	Not support
PEF	<—		PSF	0.103	0.115	0.075	Not support
PEF	<—		PGF	−0.122	−0.116	0.08	Not support
PEF	<—		POF	0.387	0.418	***	Support
PEF	<—		PJF	0.311	0.344	***	Support
TI	<—		PEF	−0.557	−0.377	***	Support
TI	<—		JS	0.618	0.495	***	Support

Source: Data adapted from authors 2018; \*\*\* denotes  $p < 0.01$ , \*\* denotes  $p < 0.05$

**Table 7. The goodness of fit indices of the modified structural model**

Fit Indices	Value	Threshold	Assessment
Chi-Square	806.729		
df	400		
p-value	0.000		Acceptable for complex model
Chi-Square/df	2.21	<3.00	Pass
CFI	0.934	>0.90	Pass
IFI	0.935	>0.90	Pass
TLI	0.936	>0.90	Pass
RMSEA	0.057	<0.10	Pass

Source: Data adapted from authors 2018.

After the model was modified (Figure 3), the factors that were not statistically significant were eliminated, and the remaining factors were relisted to improve the model. By analyzing the fit indices by performing SEM, we found that this model supported most of the hypotheses (see Table 8). Two factors are contradictory to the hypotheses [financial insecurity (H7) and responsibility (H6)] because they have direct relationships with turnover intention. This implies that when employees have too much responsibility and are facing financial problems, they will decide to leave the organization directly without going through any mediating factors.

The support for H1 indicates that job stress can increase quitting intention rates in the organization since there is the absenteeism of employees, which leads to weaker productivity. The implication of H2 can be assumed that the PEF can affect the decision making on job turnover because it is the measure of whether employees are fitted and satisfied with the current work environment. Accepting H3 means having too much work can cause employees stress. When H4 is supported, it is implied that when the authority and information of job positions are not apparent, employees will feel stressed. Supporting H5 means when there is a role conflict among employees, stress may occur. Support of H8 implies that matching between the organization and the person impacts person-environment fit. When H10 is accepted, it is assumed that the fit between job and person can influence person-environment fit.

## 5. Conclusion and implications

High levels of turnover intention can damage organizations. Understanding the motives for quitting can help an organization reduce its staff turnover. This study revealed that overload, role ambiguity, and role conflict affect job stress. On the other hand, person-supervisor fit, person-organization fit, and person-job fit influence person-environment fit. Job stress, person-environment fit, responsibility, and financial insecurity also affect a quitting intention. Thus, eliminating unsatisfied factors by the allocation of the proper amount of workload, providing precise tasks and positions, adequate distribution of responsibility, offering sufficient salary, and providing a pleasant environment will help organizations to retain employees. Thereby avoiding the negative consequences of employee turnover could be possible.

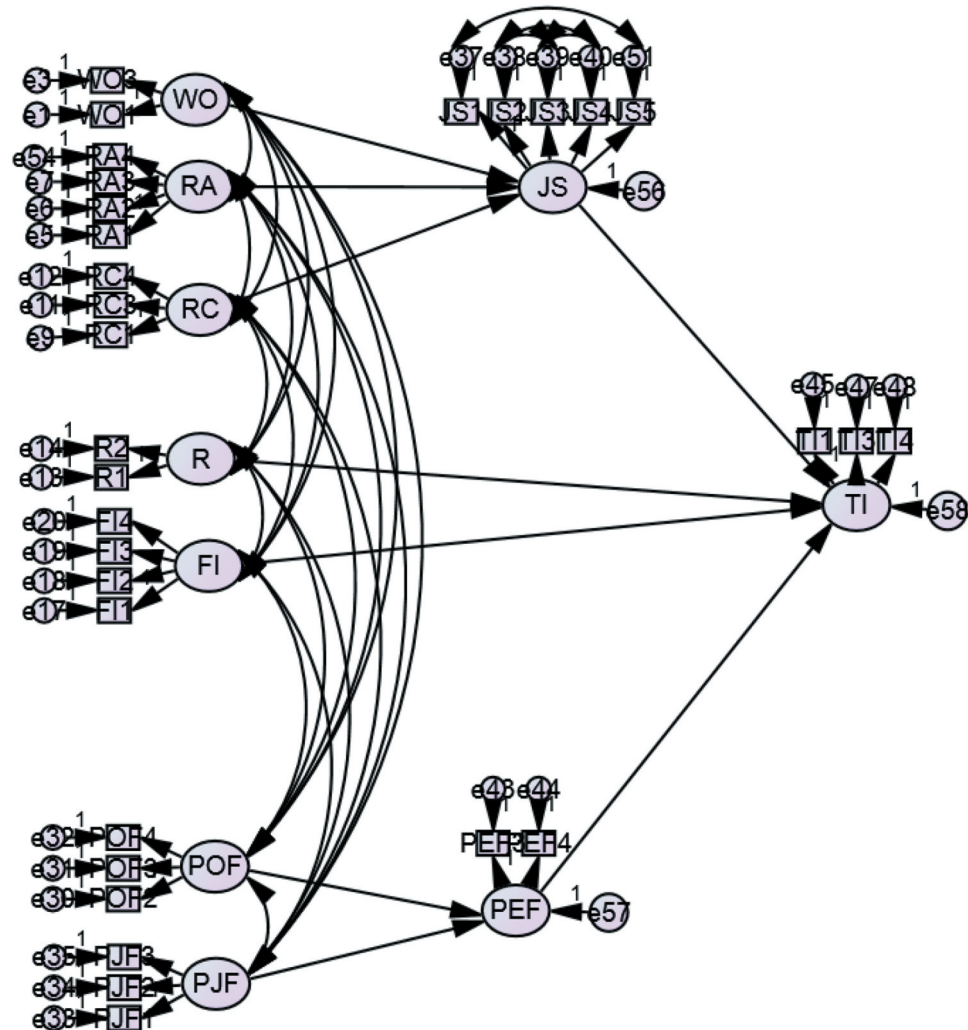
With the competitive labor markets at present and in the future, businesses must retain skilled labor for their competitive advantage. We suggest business authorities and individual workers in Thailand the following. As work overload dramatically influences an individual's job stress, hence causing one's turnover intention, the employer should distribute a proper amount of work and enhance an employee's productivity by using information technology. An individual may also manage his or her workload efficiently by creating an effective action plan, improving time management skills, and acquiring information technology. Nowadays,

**Table 8. Hypothesis test results of the modified structural model**

				Estimate	Standardized Estimate	P	Hypothesis Test Results
JS	<—		WO	0.774	0.774	***	Support H3
JS	<—		RC	0.247	0.258	***	Support H5
JS	<—		RA	-0.123	-0.112	0.045**	Support H4
PEF	<—		POF	0.382	0.412	***	Support H8
PEF	<—		PJF	0.313	0.344	***	Support H10
TI	<—		PEF	-0.455	-0.302	***	Support H2
TI	<—		JS	0.622	0.494	***	Support H1
TI	<—		FI	0.353	0.272	***	Pass but contradict to the hypothesis H7
TI	<—		R	-0.243	-0.197	0.002***	Pass but contradict to the hypothesis H6

Source: Data adapted from authors 2018; \*\*\* denotes  $p < 0.01$ , \*\* denotes  $p < 0.05$

**Figure 3. A modified structural model.** Source. Figure created by authors 2018.



several cloud-based applications can facilitate project management at both the individual or team levels. Besides, the person-environment fit is suggested to reduce an individual's turnover intention significantly. An individual's satisfaction with the work environment mainly comes from the organization itself and his or her relationship with the job supervisor. Giving authority to an employee to make a decision under his/her responsibilities could improve one's self-esteem and build trust, thereby creating a pleasant work environment.

Finally, this research has a limitation. Sampling and data collection were limited to office workers in Bangkok, Thailand. Therefore, although we report interesting findings, caution must be exercised when attempting to generalize these. Nevertheless, this work provides future research with an opportunity to explore the proposed employment turnover model using another sample in other locations within Thailand and internationally. This model could be explored in a deeper dimension, for instance, a moderating effect to test the behavioral differences between generations or job positions.

### Acknowledgement

Authors would like to express our gratitude to all participants answering the questionnaire survey, and also the funding supported by Khon Kaen University International College, Khon Kaen, Thailand.

### Funding

The authors received no direct funding for this research.

### Author details

Chavis Ketkaew<sup>1</sup>  
 E-mail: [chaket@kku.ac.th](mailto:chaket@kku.ac.th)  
 ORCID ID: <http://orcid.org/0000-0003-3506-3725>  
 Orasa Manglakakeeree<sup>1</sup>  
 Phaninee Naruetharadhol<sup>1</sup>  
 E-mail: [phaninee@kku.ac.th](mailto:phaninee@kku.ac.th)  
 ORCID ID: <http://orcid.org/0000-0001-7158-0581>  
<sup>1</sup> Business Administration Division, International College, Khon Kaen University, Thailand.

### Citation information

Cite this article as: The interrelationships of work-related factors, person-environment fit, and employee turnover intention, Chavis Ketkaew, Orasa Manglakakeeree & Phaninee Naruetharadhol, *Cogent Business & Management* (2020), 7: 1823580.

### References

- Abbas, A., Ahmad Shah, S. H., & Ahmed Deen, K. (2015). The effect of person-environment fit on turnover intentions of employees with the mediating role of job satisfaction in banking sector of Pakistan. *European Journal of Business and Management*, 7 (31), 47–61. <https://iiste.org/Journals/index.php/EJBM/article/view/26951/27634>
- Arthur, W., Jr., Bell, S. T., Villado, A. J., & Doverspike, D. (2006). The use of person-organization fit in employment decision making: An assessment of its criterion-related validity. *Journal of Applied Psychology*, 91(4), 786–801. <https://doi.org/10.1037/0021-9010.91.4.786>
- Civelek, M. E. (2018). *Essentials of Structural Equation Modeling*. Zea E-Books. 64. <https://digitalcommons.unl.edu/zeabook/64>.
- Crossman, A. (2018, December 3). *Definition of role conflict in sociology*. Thoughtco. Retrieved from <https://www.thoughtco.com/role-conflict-3026528>
- Edwards, J. R., Cable, D. M., Williamson, I. O., Lambert, L. S., & Shipp, A. J. (2006). The phenomenology of fit: Linking the person and environment to the subjective experience of person-environment fit. *Journal of Applied Psychology*, 91(4), 802–827. <https://doi.org/10.1037/0021-9010.91.4.802>
- Edwards, J. R., Caplan, R. D., & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 28–67). Oxford University Press.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18(3), 382–388. <https://doi.org/10.1177/002224378101800313>
- Gorica. (2017). *Too much responsibility and stress*. Health care for men. Retrieved September 18, 2018, from <http://www.healthcareformen.info/much-responsibility-stress/>
- Hamel, G. (2018, September 18). *The effects of high turnover in companies*. Chron.com. <http://smallbusiness.chron.com/effects-high-turnover-companies-16572.html>
- Hassan, M. U., Akram, A., & Naz, S. (2012). The relationship between person organization fit, person-job-fit and turnover intention in banking sector of Pakistan: The mediating role of psychological climate. *International Journal of Human Resource Studies*, 2(3), 172–188. [https://www.academia.edu/29959423/The\\_Relationship\\_between\\_Person\\_Organization\\_Fit\\_Person-Job-Fit\\_and\\_Turnover\\_Intention\\_in\\_Banking\\_Sector\\_of\\_Pakistan\\_The\\_Mediating\\_Role\\_of\\_Psychological\\_Climate](https://www.academia.edu/29959423/The_Relationship_between_Person_Organization_Fit_Person-Job-Fit_and_Turnover_Intention_in_Banking_Sector_of_Pakistan_The_Mediating_Role_of_Psychological_Climate)
- International Labour Organization. (2018, December 3). *Summary of the labor force survey in Thailand*. International Labour Organization (ILO). <http://www.ilo.org>
- Investopedia staff. (2018, December 3). *Insufficient Funds*. Investopedia. [https://www.investopedia.com/terms/i/insufficient\\_funds.asp](https://www.investopedia.com/terms/i/insufficient_funds.asp)
- Jha, S. (2009). Determinants of employee turnover intentions: A review. *Management Today*, 9(2), 26–33. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2442689](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2442689)
- Ketkaew, C., & Naruetharadhol, P. (2016a). Gender differences in attitudes toward migrant workers in Thailand: Evidence from Khon Kaen City. *The International Journal of Interdisciplinary Global Studies*, 11(3), 25–33. <https://doi.org/10.18848/2324-755X/CGP/v11i03/25-33>
- Ketkaew, C., & Naruetharadhol, P. (2016b). Ethnicity and job satisfaction: Perspectives of foreign educators on compensations in Khon Kaen City, Thailand. *The International Journal of Organizational Diversity*, 16 (2), 13–21. <https://doi.org/10.18848/2328-6261/CGP/v16i02/13-21>
- Ketkaew, C., Sukitprapanon, C., & Naruetharadhol, P. (2020). Association between retirement behavior and financial goals: A comparison between urban and rural citizens in China. *Cogent Business & Management*, 7(1), 1739495. <https://doi.org/10.1080/23311975.2020.1739495>
- Ketkaew, C., Van Wouwe, M., & Vichitthamaros, P. (2019a). Perceptions of working versus becoming a societal burden after retirement: Demographic analyses of industrial workers in Thailand. *Organizational Cultures*, 19(1), 23–42. <https://doi.org/10.18848/2327-8013/CGP/v19i01/23-42>
- Ketkaew, C., Van Wouwe, M., & Vichitthamaros, P. (2019b). Exploring how an entrepreneur financially plans for retirement income: Evidence from Thailand. *Cogent Business & Management*, 6(1), 1668676. <https://doi.org/10.1080/23311975.2019.1668676>
- Ketkaew, C., Wouwe, M. V., Vichitthamaros, P., & Teerawanviwat, D. (2019c). The effect of expected income on wealth accumulation and retirement contribution of Thai wagedworkers. *SAGE Open*, 9(4), 215824401989824. <https://doi.org/10.1177/2158244019898247>
- Krishnan, G., Wesley, R., & Bhaskaran, R. (2017). Perceived person-environment fit and employees' turnover intention. *International Journal of Current Advanced Research*, 6(8), 5218–5224. <https://ssrn.com/abstract=3035161>
- Leontaridi, R. M., & Ward, M. E. (2002). Work-related stress, quitting intentions, and absenteeism. Discussion paper, No.493.
- Lu, Y., Hu, X., Huang, X., Zhuang, X., Guo, P., Feng, L., Hu, L., Zou, H., & Hao, Y. (2016). The relationship between job satisfaction, work stress, work-family conflict, and turnover intention among physicians in Guangdong, China: A cross-sectional study. *BMJ Open*, 7(5), e014894. <https://doi.org/10.1136/bmjopen-2016-014894>
- Memon, M. A., Sallaeh, R., Rosli Baharom, M. N., Nordin, S. M., & Ting, H. (2017). The relationship between training satisfaction, organisational

- citizenship behaviour, and turnover intention: A PLS-SEM approach. *Journal of Organizational Effectiveness: People and Performance*, 4(3), 267–290. <https://doi.org/10.1108/JOEPP-03-2017-0025>
- Mosadeghrad, A. (2013). Occupational stress and turnover intention: Implications for nursing management. *International Journal of Health Policy and Management*, 1(2), 169–176. <https://doi.org/10.15171/ijhpm.2013.30>
- Phonthanukitithaworn, C., Naruetharadhol, P., & Ketkaew, C. (2017). Skill development and job satisfaction: Workers' perspectives in Thailand' industrial sector. *Knowledge Management: An International Journal*, 17(2), 1–10. <https://doi.org/10.1177/2158244018821757>
- The Politics of Financial Insecurity. (2017). *Items in Financial Security Scale*. Pew Research Center. Retrieved September 18, 2018, from <http://www.pewresearch.org/2015/01/08/the-politics-of-financial-insecurity-a-democratic-tilt-undercut-by-low-participation/items-in-the-financial-security-scale>.
- Qureshi, I., Jamil, R., Iftikhar, M., Arif, S., Lodhi, S., Naseem, I., & Zaman, K. (2012). Job stress, workload, environment and employees turnover intentions: Destiny or choice. *Archives of Sciences (Sciences Des Archives)*, 65(8), 1–12. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2152930](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2152930)
- Raziq, A., & Maulabakhsh, R. (2015). Impact of working environment on job satisfaction. *Procedia Economics and Finance*, 23, 717–725. [https://doi.org/10.1016/S2212-5671\(15\)00524-9](https://doi.org/10.1016/S2212-5671(15)00524-9)
- Research Center for Social And Business Development. (2018). *Worker's Organizational Commitment in Bangkok*. SAB. Retrieved April 8, 2020, from <http://sabcentre.com/>
- Role Ambiguity. (n.d.). *Psychology*. Psychology Research and Reference. Retrieved from <https://psychology.iresearchnet.com/industrial-organizational-psychology/job-satisfaction/role-ambiguity>. Accessed 18 September 2018.
- Savage, R. (2010). No raises this year? Secrets to employee retention in difficult times. *SuperVision*, 71(7), 25–26. <https://search.proquest.com/docview/521244461>
- Thailand Unemployment Rate. (2018, September 26). *Trade economics*. TE. <https://tradingeconomics.com/thailand/unemployment-rate>
- Thompson, E. (2017). *When your work load doesn't match your job description*. Huffpost. Retrieved September 18, 2018, from [https://www.huffingtonpost.ca/evan-thompson/what-to-do-when-your-work\\_b\\_15244452.html](https://www.huffingtonpost.ca/evan-thompson/what-to-do-when-your-work_b_15244452.html).
- Vahidi, N., Roslan, S., Abdullah, M. C., & Omar, Z. (2016). Relationship between need supply major fit and demand ability major fit with academic achievement, *Journal of Education and Human Development*, 5(2). <http://jehdnet.com/vol-5-no-2-june-2016-abstract-23-jehd>.
- Zhang, S., Chen, G., Chen, X., Liu, D., & Johnson, M. D. (2014). Relational versus collective identification within workgroups: Conceptualization, measurement development, and nomological network building. *Journal of Management*, 40(6), 1700–1731. <https://doi.org/10.1177/0149206312439421>
- Zkjadoon, X. (2017). *Work overload in the workplace: How to handle it*. *Business study notes*. Retrieved September 18, 2018, from <http://www.businessstudynotes.com/tips-tricks/work-overload-in-the-workplace/>.

## Appendix

**Part 1** Please tick the box according to your personal information.

### 1. Gender

☐ Male

☐ Female

### 2. Age

☐ 21 – 30

☐ 51 – 60

☐ 31 – 40

☐ 61 above

☐ 41 – 50

### 3. Education

☐ High school

☐ Ph.D.

☐ Bachelor's degree

☐ Other

☐ Master's Degree

**Part 2** Please identify the level of agreement according to your personal opinion.

**1 = Strongly Disagree**

**2 = Disagree**

**3 = Neutral**

**4 = Agree**

**5 = Strongly Agree**

<b>Turnover Intention</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) I am currently seriously considering leaving my current job to work at another company.					
(1) I will quit this company if the given working condition gets even a little worse than now.					
(1) I will quit my job at my current organization in 1 year or less.					
(1) I will probably search for a new job in the next year.					

<b>Person-Organization Fit</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) My organization meets my primary needs well.					
(1) My personal values match my organization's values and culture.					
(1) I feel that my personal values are a good fit with this organization.					

(Continued)

(Continued)					
Person-Organization Fit	5	4	3	2	1
(1) I feel that I am a good fit with this organizational culture.					

Person-Job Fit	5	4	3	2	1
(1) I am the right type of person for this type of work.					
(1) My personality is a good match for my job.					
(1) There is a good match between the requirements of this job and my skills.					
(1) My education and knowledge is a good match for my job.					

Person-Supervisor Fit	5	4	3	2	1
(1) My manager is supportive of my ideas and ways of getting things done.					

(Continued)

<b>Person-Supervisor Fit</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) My boss is flexible about how I accomplish my job.					
(1) My boss gives me the authority to do my job.					
(1) I can trust my boss to back me up on decisions I make in the field.					

<b>Person-Group Fit</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) Working with the other people in my group is one of the best parts of this job.					
(1) I get along well with the people I work with on a day-to-day basis.					
(1) There is not much conflict among the members of my group.					
(1) If I had more free time, I would enjoy spending more time with my co-worker.					
(1) There is no co-worker in my team that I try to avoid when possible.					

<b>Job Stress</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) I often feel stress at work.					
(1) Job difficulty usually brings me sleeplessness.					
(1) My job makes me nervous.					
(1) I feel exhausted after my daily work.					
(1) I feel weak and depressed at work.					
(1) I feel more hot-tempered at work.					
(1) I feel depressed and unhappy at work.					

<b>Work Overload</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) I work for long hours, on overtime, and even on holidays.					
(1) I am unable to meet out the demands of my job.					
(1) I feel tired during the day due to excessive workload.					

(Continued)

<b>Work Overload</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) I'm so busy I find it increasingly difficult to concentrate on the job in front of me.					

<b>Role Ambiguity</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) I know everything that I am expected to do at work with certainty.					
(1) My job duties are clearly defined.					
(1) I know what I am required to do for every aspect of my job.					
(1) I feel sure about how much authority I have.					
(1) I have divided my time correctly.					

<b>Role Conflict</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) In my job, I often feel like different people are "pulling me in different directions."					

(Continued)

<b>(Continued)</b>					
<b>Role Conflict</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) I have to deal with competing demands at work.					
(1) In my job, I'm always placed in a situation where one job duty conflicts with other job duties.					
(1) I do things that are appropriate to be accepted by one person but not accepted by others.					

<b>Responsibility</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) I have too many daily work duties and tasks.					
(1) I have to responsible for many work out-comes.					
(1) I am getting more and more requests from my supervisor to help them with their work challenges.					
(1) I feel that I am getting tasks that are not related to my duties.					

<b>Financial Insecurity</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
(1) I recently have trouble getting or paying for medical care for myself or my family.					
(1) I recently have trouble paying my rent or mortgage.					
(1) I recently have trouble paying my bills.					
(1) I recently have borrowed money from family or friends.					



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format.

Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.



***Cogent Business & Management* (ISSN: ) is published by Cogent OA, part of Taylor & Francis Group.**

**Publishing with Cogent OA ensures:**

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

**Submit your manuscript to a Cogent OA journal at [www.CogentOA.com](http://www.CogentOA.com)**

