

I'm Leaving the IT Field: the Impact of Stress, Job Insecurity, and Burnout on IT Professionals

Jordan Shropshire, Christopher Kadlec

College of Engineering and IT
Georgia Southern University

ABSTRACT

The information technology field has highly fluid, rapidly-evolving workforce requirements. The nature of the profession creates unique challenges and strains for IT workers. As a result, many IT professionals leave the field and seek alternative careers. The purpose of this research is to provide an empirical basis for understanding the determinants of career change. A theoretical model was developed and tested. Stress, job insecurity, and burnout are included as antecedents of intention to leave the IT field. This model was evaluated using data from a survey of IT professionals within a public-service organization. Data was analyzed using structural equation modeling. The determinants were all confirmed, although age was not found to moderate any of the relationships. In total, the constructs accounted for 32.9% of the variance in intention to leave the IT field. The theoretical implications of this study are discussed. Recommendations for decreasing work-related stress, job security, and burnout are proposed.

Keywords: *Career changes, stress, job insecurity, burnout, age, IT professionals*

1. INTRODUCTION

The information technology profession is at a crossroads. Within the next decade, a substantial proportion of the current IT workforce is expected to retire [1, 2]. Given the fact that the baby boom generation currently supplies as much as a quarter of the current labor pool, this is not surprising [3, 4]. At the same time, fewer workers are entering the IT field [5]. Colleges and universities are reporting smaller classes and less student interest in careers in the computing disciplines [5-7]. Combined, these dynamics signal an impending shortage of IT professionals. The implications of such a labor shortage would be complex and far-reaching. Businesses would be forced to spend more to hire replacements. Individual contributors would be expected to work harder and longer to make up the projected shortage. As a result of these circumstances all parties would be dissatisfied. Avoiding this pitfall is not an easy task. Perhaps the most viable mitigation is to reduce workforce attrition.

In the IT field, there is little research on career exodus. Therefore, the purpose of this study is to understand the factors which govern IT worker intention to leave the field. To that end, a conceptual framework is proposed and tested. The model includes three determinant variables. The constructs were selected following a review of the extant literature on career change. They are stress, job insecurity, and burnout. Furthermore, each of the paths is expected to be moderated by age. The corresponding hypotheses are tested using survey data from a sample of IT workers at a medium-sized public-service organization. The results are expected to provide guidance for further studies of career change involving IT workers.

This article begins by reviewing the psychology of career change, its antecedents and consequences, and its impact in the IT field. Next, the research design and

methods utilized in the present study are described. Following the methodology sections, the results of the data analysis are conveyed and support for the hypotheses is clarified. A discussion of this study and its implications for research is conducted. Finally, the limitations are reviewed and concluding comments are stated.

2. BACKGROUND

Unhappy IT workers seek change. Some find greener pastures by taking positions with different organizations, others want entirely new careers. Prior studies focused on general turnover of IT staff, where turnover intention was measured in terms of worker desire to leave the firm. This research focused on identifying the determinants of turnover intention. A recent meta-analysis of 31 articles on turnover in the IT field identified over 40 independent predictors [8]. Among other contributions, those studies laid the groundwork for understanding employee unhappiness and its negative consequences for organizations [9, 10]. While turnover research focuses on why employees voluntarily leave their organizations, the present study focuses on why workers leave the IT field altogether. Career change is not the same as turnover; it involves separate stream of [11-14]. While this topic has garnered little attention in the IT field, it has been addressed in professions such as healthcare [15, 16], engineering [17, 18], accounting [19], and insurance [20]. Thus, this study focuses on the factors which lead IT workers to make career changes.

Career change intentions are psychological formulations made by individuals who intend to seek alternative professions [21]. They are based on a combination of factors, including emotion [22], work-related attitudes [23], and perceived viability of their current field [24]. They may also include inflexibility [25],

low job satisfaction [26], lack of financial reward [27], and poor opportunities for development [28].

Because little research exists on career change in the IT field, it was necessary to review related studies from the nursing and accounting paradigms. These reference disciplines were chosen because they have several characteristics in common with IT: they require long hours, attention to technical details, and are service-based careers [29, 30]. Based on the extant literature on career exodus, it is expected that stress, job insecurity, and burnout are the most likely causes of career exodus for information technology workers [15, 31]. As a confirmation, an ad-hoc content analysis was conducted using IT practitioner-oriented articles which were published within the last two years. In particular, a recent review of turnover literature was found to confirm support [32]. The results of the analysis support the selection of the constructs. These proposed linkages are summarized in Figure 1. Each of the constructs is introduced in the following sections.

Stress

Stress is a condition which occurs when individuals realize that the pressures or requirements facing them may be more than they can handle [33]. Stress can affect all facets of an individual's life, and may stem from any number of stimuli. At work, stress may be a perception indicated by ambiguity, conflict, or overload arising from the characteristics of the individual and the work environment [34]. There are two types of stress, eustress and distress [35].

Eustress is not necessarily negative. It may help initiate goal-striving. Low to moderate levels of eustress may stimulate people to excel and increase performance. While taxing, the right combination of challenge coupled with disruptive pleasure encourages performance [36]. The need to create alignment among these elements within a role can reduce boredom and encourage higher work performance [37-39].

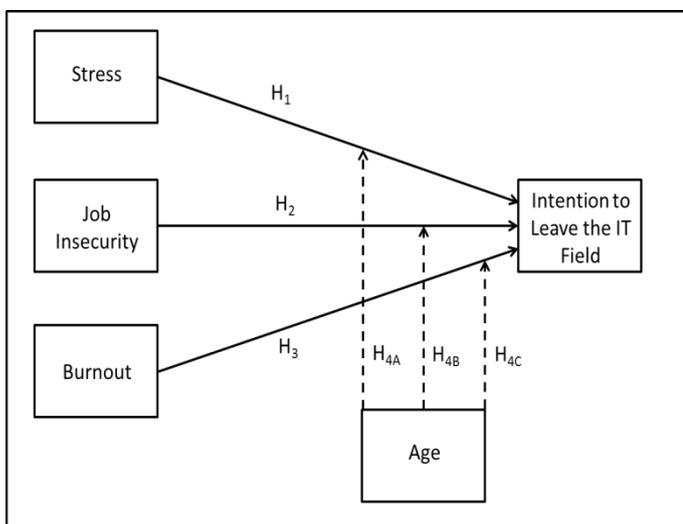


Figure 1: Research Model

However, too much stress can have the opposite effect. This is distress, a condition which occurs when an individual perceives a loss, challenge, or risk [40]. When stress levels exceed the coping abilities and resources available to an individual, the results are detrimental to the organization and the worker [41-43]. The negative effect of distress on various work-related outcomes has been widely documented [44]. Examples of negative outcomes include increased absenteeism [45, 46], high turnover [47, 48], emotional exhaustion [49], deteriorating personal health [50], reduced organizational commitment [51], and lower job performance [52, 53]. Finally, stress has been linked to career change intention in multiple studies [15, 54, 55]. A common thread among these studies is that when workers become overwhelmed with pressures which are common to their field, they will change careers in order to reduce stress. Based on this evidence, it is expected that overstressed IT workers will follow suit and change careers. Therefore, we suggest the following:

HYPOTHESIS 1: *When distress reaches a level individuals cannot cope with, it will have a positive influence on intention to leave the IT field.*

Job Insecurity

Job insecurity has been defined as powerlessness to maintain desired continuity in a threatened job situation [56]. Earlier studies suggest that employees and organizations enter into a psychological contract in which it is clear what each party will give and expect to receive [43]. Based on these contracts, workers develop a sense of control and ability to predict events in their lives. Given the importance of this empowerment in people's lives, changes which threaten employee perceptions of control induce strong reactions including feelings of insecurity [57-59]. Major events such as mergers, downsizing, new technologies, and industry changes may be sources of perceived threat [60, 61]. Job insecurity may also stem from more localized threats such as job conditions, role ambiguity, role conflict, and locus of control [56]. These threats create uncertainty because they challenge the conditions on which employees make future predictions. There are many consequences of job insecurity, including fear, anxiety, and potential loss of the job [62]. Previous studies indicate that employees who question the long-term viability of their career will seek new professions [63]. These findings have been substantiated for employees in the accounting [64], retail [65], law enforcement [66], manufacturing [67], healthcare [68], and hospitality fields [69]. Based on the similarities between information technology and the aforementioned fields, it is expected that IT professionals who question the long-term viability of their work will seek new occupations. Following this logic, it is assumed that:

HYPOTHESIS 2: *Job insecurity will have a positive influence on intention to leave the IT field.*

Burnout

Job-related burnout is constant or repeated emotional pressure associated with intense involvement with people over long periods of time [70]. It may be characterized by a combination of factors such as low energy or exhaustion [71]. Burnout is the affective reaction to stressors such as role conflict or role ambiguity [72-75], lack of autonomy [74, 76], lack of rewards [70, 74], or work overload [77]. These stressors cause a gradual depletion of individuals' intrinsic energetic resources over time [78]. They lead to feelings of emotional exhaustion, physical fatigue, and cognitive weariness [79]. Burnout is the end result of a process in which motivated and committed individuals lose their energy following prolonged exposure to chronic pressure. Some of the consequences of burnout include low job satisfaction [72, 80], reduced organizational commitment [75, 81], and higher levels of employee turnover intention [8, 75, 82]. Finally, burnout has been linked to career change intentions in fields such as nursing [15], finance and risk management [83, 84], real estate [85], and teaching [72, 86, 87]. In these cases, career change is the result of a determination that the nature of the work (but not necessarily the organization) is the primary cause of emotional and physical fatigue. It is expected that burnout will have a similar impact on those in the computing professions as well. IT is similar to fields such as nursing and finance in that they are all demanding fields which require long hours and careful attention to technical details. Therefore the following hypothesis is proffered:

HYPOTHESIS 3: *Burnout will have a positive influence on intention to leave the IT field.*

Age

Age has long remained a critical factor in organizational research [88]. Recent studies have

investigated how younger workers differ from older workers in terms of ethics [89], motivation [90], trust [91], acceptance of change [92], and reaction to unfair treatment [93]. Age differences are also related to worker turnover (Turnley and Feldman, 1999), and willingness to change careers [94]. Specifically, they find younger workers are more willing to leave their current positions while older workers are more embedded [95, 96]. Therefore, it is expected that an IT worker's age will moderate the relationship between stress, insecurity, burnout, and intention to leave the field. Thus, the following hypothesis is suggested:

HYPOTHESIS 4: *The relationship between stress, job insecurity, burnout, and career change will strengthen when IT worker age is lower.*

3. METHODS

Sample & Procedure

The sample was comprised of IT workers in a medium-sized public service organization in the United States. Specifically, the organization was a public four year university located in medium-sized town in the state of Georgia. The university consists of approximately 19,000 students and has over 1600 faculty and staff. The organization is funded by a combination of state, federal, and private contributions. Of the 96 distributed surveys, 71 were returned and 65 were usable. As summarized in Figure 2, the average IT worker in the study is 32.3 years old, is male, and has been in his current position for 1.2 years. This profile is consistent with the state-wide demographics of all employees of the University System (as reported by the Office of the Chancellor). Compared with the nationwide population of IT workers, it appears that the sampled IT workers are more advanced in age.

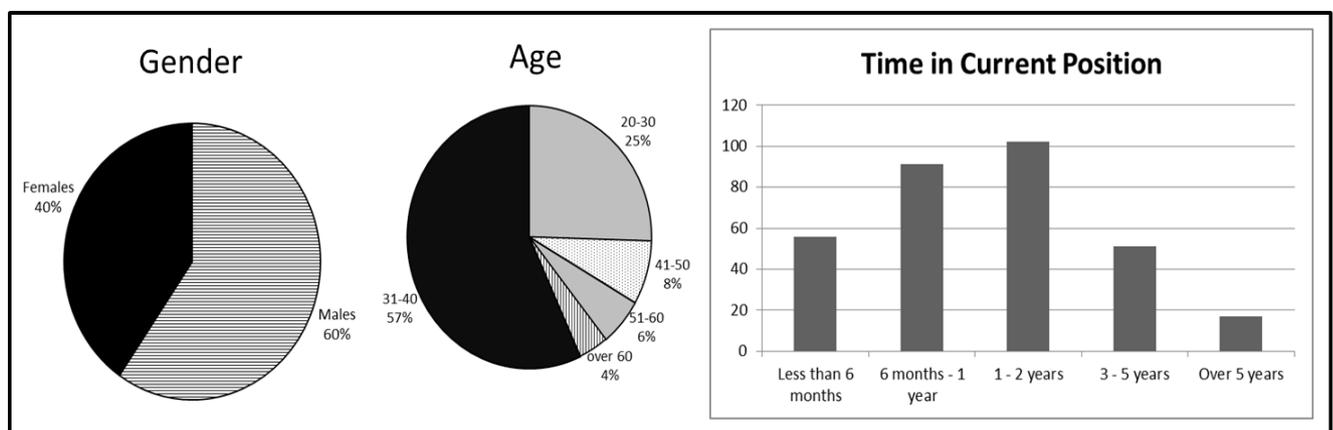


Figure 2: Sample Demographics

For instance, the Association of IT Professionals indicates that the average age of its national membership is approximately 29. The age ranges from 19 to 63 in this sample, providing breadth for research regarding age.

Of all of its information technology workers, approximately 60% are full-time, benefited employees. The rest are classified as part-time workers, interns, contract consultants, or short-term casual laborers. The organization's human resources department did not count these employment categories as "career-track" positions. This distinction is important and increasingly common in the IT field. Therefore, only regular, full-time IT workers were included in the survey. Each participant was given a packet which contained a cover letter, a paper copy of the survey, and a pre-addressed, stamped return envelope. The cover letter introduced the survey and the researchers. It also explained that the survey was confidential and that the results would be published in an academic journal. No inducements or gratuities were offered. Those who elected to participate completed their surveys and returned them by U.S. mail.

Instrumentation

The survey consisted of questions which operationalized the constructs in the research model. The antecedent measures were adopted from the short version of the Copenhagen Psychosocial Questionnaire (COPSOQ), a holistic instrument designed to provide a complete prognosis of employee occupational health [54, 97]. This instrument was developed in multiple languages and tested using a sample of 3,500 workers from a range of vocations and industries. The benefits of using items from a single instrument include improved convergent and discriminant validity and increased assurance of proper content coverage. Stress, job insecurity, and burnout were each measured using 4 items. Intention to leave the IT field was an adapted previously validated measure consisting of 3 items [98]. It was necessary to reword the original measure so that it was specific to the IT field. All the items used 5 point scales with various anchors (see Appendix A). Following established guidelines [99, 100] the construct measures were all categorized as reflective. Basic demographic information (age, gender, and years in current position) was also collected.

Table 1: Psychometric Properties of Measures

Construct	Item	Construct				AVE
		Stress	Insecurity	Burnout	LeaveIT	
Stress	S1	.916	.117	.265	.310	.869
	S2	.934	.128	.247	.241	
	S3	.960	.098	.249	.281	
	S4	.917	.051	.363	.171	
Job Insecurity	I1	.021	.906	.399	.367	.650
	I2	.124	.739	.125	.142	
	I3	.206	.851	.350	.469	
	I4	.007	.713	.167	.339	
Burnout	B1	.353	.062	.707	.046	.692
	B2	.323	.251	.856	.212	
	B3	.143	.486	.892	.372	
	B4	.358	.102	.861	.206	
Intention to Leave IT	L1	.279	.446	.293	.931	.919
	L2	.266	.445	.320	.981	
	L3	.260	.412	.293	.963	

4. RESULTS

After allowing four weeks for surveys to be returned, the data was tabulated into an electronic spreadsheet in order to calculate demographics and purge incomplete responses. Of the 96 distributed surveys, 71 were returned and 65 were usable. Because this is a relatively small sample frame, extra care was taken to ensure that multivariate statistical analysis was still appropriate. Based on previously established guidelines

for small sample partial least squares analysis it was confirmed that the data were suitable [101]. Since the independent variables and the dependent variable were derived from the same source of data, a test for common methods variance (CMV) was conducted [102]. The results of this test confirmed the suitability of the data for further analysis.

Several tests were conducted to ensure the validity of the measures. The components-based approach [103] for structural equations modeling was employed via

the SmartPLS software package [104]. Factor loadings were used to assess the convergent and discriminant validity of reflective constructs. Such loadings indicate if items cross-load or fail to significantly load on their respective latent variables [105]. Specifically, convergent validity is demonstrated when items load above 0.70 on their respective construct and when the average variance extracted (AVE) is above 0.50 for each construct. Discriminant validity is identified when item loadings are greater for their respective construct than for other constructs in the model, and when each construct's square

rooted AVE are greater than its intercorrelation with other constructs. As indicated in Tables 1 and 2, the conditions for both convergent and discriminant validity are met.

Construct reliability was assessed by considering the internal consistency measure for each construct. Those which exceeded the .70 level of internal consistency were judged to possess sufficient reliability [106, 107]. As shown in Table 2, the internal consistency for each construct was above .70, which exceeds the recommended threshold for construct reliability.

Table 2: Correlations among Constructs

Construct	RELI	Stress	Insecurity	Burnout	LeaveIT
Stress	.963	.932			
Job Insecurity	.880	.110	.806		
Burnout	.899	.292	.356	.831	
Intention to Leave IT	.971	.280	.453	.316	.959

Table 3: Outcome of the Hypothesis Tests

Hypothesis	Path	Coefficient	T or F Value	P-value	Supported?
H ₁	Stress → LeaveIT	.335	6.24	p<.0001	✓
H ₂	Insecurity → LeaveIT	.308	3.87	p<.0003	✓
H ₃	Burnout → LeaveIT	.303	3.93	p<.0002	✓
H _{4A-C}	Moderating Effect of Age	---	---	p<.0921	X

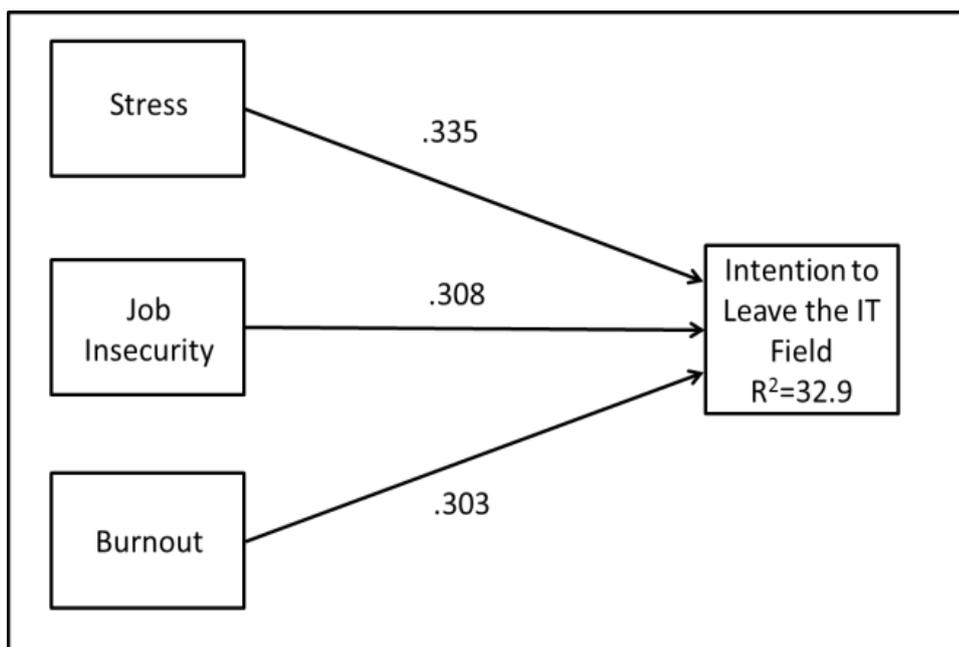


Figure 3: Supported Paths

After confirming the validity of the instrument, hypothesized direct effect paths were tested using bootstrap resampling [103]. Table 3 lists the results of the PLS analysis. It appears that the paths between stress, job insecurity, burnout, and the dependent variable are significant at the .001 alpha levels. The model accounts for 32.9% of the variance in Intention to leave the IT field (see Figure 3). Surprisingly, moderation tests did not support hypotheses H4A-C. The moderating role of age on stress, job insecurity, and burnout was not confirmed at the .05 alpha levels.

Finally, this research controlled for a number of variables (such as job satisfaction, organizational

commitment, and perceived organizational support) that are commonly associated with general turnover.

5. DISCUSSION

The results of this study provide a basis for understanding the role of stress, job insecurity, and burnout on intention to leave the IT field. This reinforces the extant literature on work demands resulting in career changes [108] and extends the understanding of such dynamics within the information technology field. Some of the major contributions to theory and practice are depicted in Table 4.

Table 4: Key Research Contributions

Contribution Type	Description of Scholarly Contribution
Theory	Compared with previous studies of IT worker turnover, this research focused specifically on desire to leave the IT field.
Theory	A greater breadth of antecedents of career change exists than previously recognized.
Theory	Stress and burnout are more influential determinants than earlier studies suggest.
Theory	Age does not play a role in ending IT careers.
Methodological	Elements of the COPSOQ survey instrument possess sufficient validity for research in the IT field.

One of the primary contributions of this research is that it involves a relatively unexplored dependent variable – intention to leave the IT field. Previous research has focused on the general intention to leave one's current position [8]. Such studies usually do not distinguish between employees who are seeking technical positions with other firms from those who are leaving for new careers. The implications of general turnover studies are generally limited to the individual and his or her current organization. However, because this study focused on intention to leave the IT field, it has a wider impact. When information professionals voluntarily leave the IT workforce, the economy suffers because talent becomes relatively scarcer. Given the expected wave of retirements within the next decade [1, 2], this problem becomes even more severe. Thus, as a first step toward reversing the trend, this research identified factors which motivate IT workers to leave the field. Consistent with expectations, we found that stress, job insecurity, and burnout are positively related to the dependent variable. In other words, IT workers who suffer from stress, burnout, or are concerned about their job's security are more likely to consider a different career. Surprisingly, age was not found to moderate the hypothesized relationships. This contrasts previous studies and expectations regarding the present research. It may be that time in current position is more relevant than age for IT workers. It is recommended that future studies examine on the role of age using semi-structured interviews in order to address this question.

Managers wishing to retain IT talent should implement changes aimed at improving the work/life balance. Managing information technology for 99% service uptime is very demanding, both physically and

emotionally [109]. Informal interviews indicated that this was a primary cause of burnout and stress. Many IT workers in small and medium sized organizations are expected to be available on a 24/7 basis [108]. Even in large firms employees take turns being on-call to resolve technical issues. Often this entails leaving one's home during non-business hours and returning to the office to perform emergency service or maintenance [110]. The most feasible solution to avoiding burnout is to clarify the boundary between work and home [111].

Organizations should consider employee retraining/re-equipping IT workers with skills which the organization currently requires or which may otherwise be in-demand [112]. This will allow current employees to gain valuable, marketable skills. Such investment could encourage workers to remain in the field. It would also provide the organization with in-house talent to complete current and future IT initiatives.

6. LIMITATIONS

Although this study was conducted in keeping with current IS research practices, it is not completely without limitations. Some potential limitations concern the sample. First, the sample was comprised of IT workers from one organization in the southeastern United States. Because there may be differences among organizations and among geographic regions within the United States, this may limit the applicability of the sample. However, if data from other organizations were included, the homogeneity of the sample would have been significantly reduced. Therefore, only IT workers from one organization were included. As previously mentioned, the

organization used various non-traditional employment agreements in order to meet its IT workforce needs. Only 60% of the IT workers were full-time, benefited employees. These were the only employees included in the sample, as they were from the only category classified as “career-track professionals” by the enterprise’s human resources department. These employment arrangements are increasingly common within the IT field. Thus, although the sample criteria are in keeping with previous studies and with the organization’s employment framework, a proportion of the IT workforce is not included. Their inclusion could raise questions regarding differences in long-term goals, career plans, motivation, and various other organizational perceptions. Future studies should provide guidance on this aspect of sample selection and analyze the differences among populations.

7. CONCLUSION

Given the anticipated exodus of retiring IT workers, it would appear that a shortage of qualified professionals is imminent. The implications of such a labor shortage would be complex and far-reaching. Organizations would be forced to spend more to hire replacements. Individual contributors would be expected to work harder and longer to make up the projected shortage. As a result of these circumstances all parties would be dissatisfied. Avoiding this pitfall is not an easy task. Simply recruiting more students into the technical fields will not solve the problem. It will take years for new graduates to develop the skills which experienced IT workers already possess. Perhaps the most viable mitigation is to reduce workforce attrition. To that end, this research provides value by identifying the major determinants of employee intention to leave IT. Stress, job insecurity, and burnout were verified as factors which cause IT workers to consider alternative vocations. This research provides a solid foundation for researchers to further explore the negative consequences of the IT work environment and its implications for practitioners’ careers. Although numerous research questions remain unanswered in this important domain, future research will provide more clarity. A concerted effort by managers and researchers can help solve important problems in this domain and lead to a more stable IT workforce.

REFERENCES

- [1]. Lam, S. and W. Chung, *The changing landscape of aging workforce in Hong Kong- The importance of ICT training in lifelong corporate learning* International Journal of Advanced Corporate Learning, 2010. **3**(1): p. 11-16.
- [2]. Rowe, R., *IT faces retiring mainframe workforce challenges*. Mainframe Computing, 2010. **23**(10): p. 1-2.
- [3]. Flynn, M., *Who would delay retirement? A typology of older workers*. Personnel Review, 2010. **39**(3): p. 308-324.
- [4]. Goodman, A., *The aging workforce: Preventing the knowledge gap*. Profiles in Diversity Journal, 2009. **11**(3): p. 42-43.
- [5]. Granger, M., et al., *Information systems enrollments: Challenges and strategies*. Journal of Information Systems Education, 2007. **18**(3): p. 303-311.
- [6]. Akbulut-Bailey, A., *A measurement instrument for understanding student perspectives as stereotypes of IS professionals*. Communications of the AIS, 2009. **25**(1): p. 321-338.
- [7]. Koch, H. and T. Kayworth, *Partnering with majors: A process approach to increasing IS enrollment* Journal of Information Systems Education, 2009. **20**(4): p. 439-449.
- [8]. Joseph, D., et al., *Turnover of information technology professionals: A narrative review, meta-analytic structural equation modeling, and model development*. MIS Quarterly, 2007. **31**(3): p. 547-577.
- [9]. Moore, J., *One road to turnover: An examination of work exhaustion in technology professionals*. MIS Quarterly, 2000. **24**(1): p. 141-168.
- [10]. Rutner, P., B. Hardgrave, and D. McKnight, *Emotional dissonance and the information technology professional*. MIS Quarterly, 2008. **32**(3): p. 635-652.
- [11]. Chang, C., et al., *Information system personnel career anchor changes leading to career changes*. European Journal of Information Systems, 2011. **20**(1): p. 103-117.
- [12]. Crepeau, R., C. Crook, and M. McMurtrey, *Career anchors of information systems personnel*. Journal of Management Information Systems, 1992. **9**(2): p. 8-24.
- [13]. Dalton, G., P. Thompson, and R. Price, *The four stages of professional careers: A new look at performance by professionals*. Organizational Dynamics, 1977. **6**(1): p. 25-49.
- [14]. Haynie, M. and D. Shepard, *Toward a theory of discontinuous career transition: Investigating career transitions necessitated by traumatic life events*. Journal of Applied Psychology, 2011. **96**(3): p. 501-524.

- [15]. Flinkman, M., et al., *Explaining young Finnish nurses' intention to leave the profession: A questionnaire survey*. International Journal of Nursing Studies, 2008. **45**(1): p. 727-739.
- [16]. Kowalewski, S. and L. Waukau-Villagomez, *Stroytelling and career narratives in organizations*. Global Journal of Business Research, 2011. **5**(4): p. 83-92.
- [17]. Chang, Y., et al., *Student engineers as agents of change: Combining social interaction in the professional development of electrical and computer engineering students*. Systemic Practice & Action Research, 2011. **24**(3): p. 237-245.
- [18]. Emison, G., *Transformative leadership for engineering in a time of complexity*. Leadership & Management in Engineering, 2011. **11**(2): p. 97-102.
- [19]. Carleton, K., *How to motivate and retain knowledge workers in organizations: A review of the literature*. International Journal of Management, 2011. **28**(2): p. 459-468.
- [20]. Miley, J., *Turning a passion into a second career*. Kiplinger's Personal Finance, 2011. **65**(7): p. 80-81.
- [21]. Forret, M., S. Sullivan, and L. Mainiero, *Gender role differences in reactions to unemployment: Exploring psychological mobility and boundaryless careers*. Journal of Organizational Behavior, 2010. **31**(5): p. 647-666.
- [22]. Fredrickson, B., *What good are positive emotions?* Review of General Psychology 1998. **3**(2): p. 300-319.
- [23]. Beach, L. and T. Connolly, *The Psychology of Decision Making: People in Organizations*. 2nd ed2005, Thousand Oaks, CA: Sage.
- [24]. Murtagh, N., P. Lopes, and E. Lyons, *Decision making in voluntary career change: An other-than-rational perspective* Career Development Journal 2011. **59**(3): p. 249-263.
- [25]. Duffield, C., et al., *Nursing: A stepping stone to future careers* Journal of Nursing Administration, 2004. **34**(5): p. 238-245.
- [26]. Shader, K., et al., *Factor influencing satisfaction and anticipated turnover of nurses in an academic medical center* Journal of Nursing Administration, 2001. **31**(4): p. 210-216.
- [27]. Chan, E. and P. Morrison, *Factors influencing the retention and turnover intentions of registered nurses in a Singapore hospital*. Nursing and Health Sciences, 2000. **2**(3): p. 113-121.
- [28]. Hasselhorn, M., et al., *Nursing in Europe: Intention to leave the nursing profession*. NEXT Scientific Report, 2005: p. 17-24.
- [29]. Cashin, W., *Students do rate different academic fields differently*. New Directions for Teaching and Learning, 2006. **21**(43): p. 113-121.
- [30]. Wygal, D., *Teaching, scholarship and sharing: Perspectives on community*. Accounting Education, 2011. **20**(3): p. 227-237.
- [31]. Lane, I., R. Matthews, and P. Preshold, *Determinants of nurses' intentions to leave their profession*. Journal of Organizational Behavior, 1998. **9**(4): p. 367-372.
- [32]. Carayon, P., et al., *Evaluating causes and consequences of turnover intention among IT workers: The development of a questionnaire survey*. Behaviour & Information Technology, 2006. **25**(5): p. 381-397.
- [33]. Kahn, R. and R. Quinn, *Role stress: A framework for analysis*, in *Mental Health and Organizations*, A. McClean, Editor 1970, Rand McNally & Co.: Chicago, Ill.
- [34]. Tetrick, L., *Mediating effect of perceived role stress: A confirmatory analysis*, in *Stress and Well Being At Work*, J. Quick, L. Murphy, and J. Hurrell, Editors. 1992, APA: Washington DC.
- [35]. Selye, H., *The Stress of Life* 1956, New York, NY: McGraw-Hill.
- [36]. Bhagat, R., et al., *Total life stress: A multi-method validation of the construct and its effects on organizationally valued outcomes and withdrawal behaviors*. Journal of Applied Psychology, 1985. **70**(1): p. 202-203.
- [37]. Jones, M., *Role conflict: Cause of burnout or energizer?* Social Work, 1993. **38**(2): p. 136-141.
- [38]. Marks, S., *Multiple roles and role strain: Some notes on human energy, time and commitment*. American Sociological Review, 1977. **42**(3): p. 921-926.
- [39]. Seiber, S., *Toward a theory of role accumulation* American Sociological Review, 1974. **39**(4): p. 567-578.

- [40]. Selye, H., *Stress without distress* 1974, Philadelphia, PA: Lippincott Co.
- [41]. Goolsby, Z., G. Rhoads, and J. Singh, *Behavioral and psychological consequences of boundary spanning burnout for customer service representatives* Journal of Marketing Research, 1994. **31**(2): p. 558-569.
- [42]. Jamal, M., *Job stress and job performance controversy: An empirical assessment*. Organizational Behavior and Human Performance, 1984. **33**(2): p. 1-21.
- [43]. Sverke, M. and J. Hellgreen, *The nature of job insecurity: Understanding employment uncertainty on the brink of a new millennium*. Applied Psychology: An International Review, 2002. **51**(21): p. 23-42.
- [44]. Orqvist, D. and J. Wincent, *Prominent consequences of role stress: A meta-analytic review*. International Journal of Stress Management, 2006. **13**(4): p. 399-422.
- [45]. Brown, D., *Wellness programs bring healthy bottom line*. Canadian HR Reporter, 2001. **14**(22): p. 22-23.
- [46]. Goetzal, R., et al., *The relationship between modifiable health risks and health care expenditures: An analysis of the multi-employer HERO health risk and cost database*. Journal of Occupational and Environmental Medicine, 1998. **40**(10): p. 843-854.
- [47]. Lee, D., *Employee Stress*. The John Liner Review, 1997. **11**(3).
- [48]. Mann, S., *Employee stress: An important cost in mergers*. Business Insurance, 1996. **30**(24): p. 13-19.
- [49]. Posig, M. and J. Kickul, *Extending our understanding of burnout: Test of an integrated model in nonservice occupations*. Journal of Occupational Health Psychology, 2003. **8**(1): p. 3-19.
- [50]. Keenan, A. and T. Newton, *Frustration in organizations: Relationships to role stress, climate, and psychological strain*. Journal of Occupational Psychology, 1984. **57**(3): p. 57-65.
- [51]. Johnston, M., et al., *A longitudinal assessment of the impact of selected organizational influences on salespeople's organizational commitment during early employment*. Journal of Marketing Research, 1990. **27**(3): p. 333-344.
- [52]. Abramis, D., *Work role ambiguity, job satisfaction, and job performance: Meta analyses and review*. Psychological Reports, 1994. **75**: p. 1411-1433.
- [53]. Babin, B. and J. Boles, *On the front lines: Stress conflict, and the customer service provider*. Journal of Business Research, 1996. **37**(41-50).
- [54]. Hoffman, A. and L. Scott, *Role stress and career satisfaction among registered nurses by work shift patterns* Journal of Nursing Administration, 2003. **33**(6): p. 337-342.
- [55]. Rhodes, S. and M. Doering, *An integrated model of career change*. Academy of Management Review, 1983. **8**(4): p. 631-639.
- [56]. Greenhalgh, L. and Z. Rosenblatt, *Job insecurity: Toward conceptual clarity*. Academy of Management Review, 1984. **9**(1): p. 438-448.
- [57]. Lim, V., *Job insecurity and its outcomes: moderating effects of work-based and non-work-based social support*. Human Relations, 1996. **49**(24): p. 32-47.
- [58]. Mohr, G., *The changing significance of different stressors after the announcement of bankruptcy: A longitudinal investigation with special emphasis on job insecurity*. Journal of Organizational Behavior, 2000. **21**(3): p. 337-359.
- [59]. Smithson, J. and S. Lewis, *Is job insecurity changing the psychological contract?* Personnel Review, 2000. **29**(6): p. 680-702.
- [60]. Brokner, J., *The effects of work layoffs on survivors: Research, theory, and practice*, in *Research in Organizational Behavior*, B. Staw and L. Cummings, Editors. 1988, JAI Press: Greenwich CT.
- [61]. Roskies, E. and C. Louis-Guerin, *Job insecurity in managers: Antecedents and consequences*. Journal of Organizational Behavior, 1990. **11**(2): p. 345-359.
- [62]. Ashford, S., C. Lee, and P. Bobko, *Content, causes, and consequences of job insecurity: A theory-based measure and substantive test*. Academy of Management Journal, 1989. **32**(4): p. 803-829.
- [63]. Wittekind, A., S. Raeder, and G. Grote, *A longitudinal study of determinants of perceived employability*. Journal of Organizational Behavior, 2010. **31**(4): p. 566-586.

- [64]. Lanigan, K., *Future-proofing your career*. Accountancy Ireland, 2008. **40**(5): p. 71-73.
- [65]. Fournier, C. and E. Roskies, *Coping with job insecurity: How does personality make a difference?* Journal of Organizational Behavior, 1993. **14**(2): p. 617-630.
- [66]. Kirkcaldy, B., et al., *Personality, job satisfaction, and well-being among public sector (police) managers*. European Review of Applied Psychology, 1993. **43**(3): p. 241-248.
- [67]. Latack, J., A. Kinicki, and G. Prussia, *An integrative process model of coping with job loss*. Academy of Management Review, 1995. **20**(1): p. 40-72.
- [68]. Louis-Guerin, C. and E. Roskies, *Job insecurity in managers: Antecedents and consequences*. Journal of Organizational Behavior, 1990. **11**(2): p. 345-359.
- [69]. Fried, Y., et al., *Managers' reactions to corporate acquisition: A test of of an integrative model*. Journal of Organizational Behavior, 1996. **17**(2): p. 32-60.
- [70]. Pines, A., E. Aronson, and D. Kafry, *Burnout: From Tedium to Personal Growth* 1981, New York, NY: The Free Press.
- [71]. Maslach, C. and S. Jackson, *The measurement of experienced burnout*. Journal of Organizational Behavior, 1981. **2**(1): p. 99-115.
- [72]. Burke, M. and E. Greenglass, *A longitudinal study of psychological burnout in teachers*. Human Relations, 1995. **48**(2): p. 187-202.
- [73]. Fimian, M. and L. Blanton, *Stress, burnout, and role problems among teacher trainees and first-time teachers*. Journal of Occupational Behavior, 1987. **8**: p. 157-165.
- [74]. Jackson, S., R. Schwab, and R. Schular, *Toward an understanding of the burnout phenomenon*. Journal of Applied Psychology, 1986. **71**(2): p. 630-640.
- [75]. Sethi, V., T. Barrier, and R. King, *An examination of the correlates of burnout in information systems professionals*. Information Resources Management Journal, 1999. **12**(3): p. 5-13.
- [76]. Landsbergis, P., *Occupational stress among health care workers: A test of the job demands control model*. Journal of Personality and Social Psychology, 1988. **61**(2): p. 132-140.
- [77]. Leiter, M., *Coping patterns as predictors of burnout: The function of control and escapist coping*. Journal of Occupational Behavior, 1991. **12**(1): p. 123-144.
- [78]. Simmons, B., et al., *Secure attachment: implications for hope, trust, burnout, and performance*. Journal of Organizational Behavior, 2009. **30**(1): p. 233-247.
- [79]. Shirom, A., *Burnout in work organizations, in International Review of Industrial and Organizational Psychology*, C. Cooper and I. Robertson, Editors. 1989, Wiley: New York, NY.
- [80]. Wolpin, J., R. Burke, and E. Greenglass, *Is job satisfaction an antecedent or a consequence of psychological burnout?* Human Relations, 1991. **44**(1): p. 193-209.
- [81]. Jackson, S., J. Turner, and A. Brief, *Correlates of burnout among public service lawyers*. Journal of Applied Psychology, 1987. **71**(1): p. 630-640.
- [82]. Firth, H. and P. Britton, *Burnout: Absence and turnover amongst British nursing staff*. Journal of Occupational Psychology, 1989. **62**(4): p. 55-60.
- [83]. Messmer, M., *Are you burning out your best employees?* Strategic Finance, 2004. **85**(11): p. 12-14.
- [84]. Praba, D., *Role stress of employees in life insurance companies*. Global Management Review, 2010. **4**(4): p. 87-92.
- [85]. Muir, J., *Surviving burnout*. Journal of Property Management, 2008. **73**(1): p. 16-17.
- [86]. Cherniss, C., *Long-term consequences of burnout: An exploratory study*. Journal of Organizational Behavior, 1992. **13**(1): p. 1-11.
- [87]. Sparks, D., *Practical Solutions for Teacher Stress*. Theory Into Practice, 1983. **22**(1): p. 33-43.
- [88]. Bal, P., et al., *age and trust as moderators in the relation between procedural justice and turnover: A large-scale study*. Applied Psychology: An International Review, 2011. **60**(1): p. 66-86.
- [89]. Bal, P., et al., *Psychological contract breach and work performance: Is social exchange a buffer or an intensifier?* Journal of Managerial Psychology, 2008. **25**(3): p. 252-273.

- [90]. Kanfer, R. and P. Ackerman, *Aging, adult development, and work motivation*. Academy of Management Review, 2004. **29**(2): p. 440-458.
- [91]. Rousseau, D., et al., *Not so different after all: A cross-discipline view of trust*. Academy of Management Review, 1998. **23**(1): p. 393-404.
- [92]. Van der Heijden, B., R. Schalk, and M. Van Veldhoven, *Aging and careers: European research on long-term career development and early retirement*. Career Development International, 2008. **13**(5): p. 85-94.
- [93]. Ayree, S., P. Budhwar, and Z. Chen, *trust as a mediator of the relationship between organizational justice and work outcomes*. Journal of Organizational Behavior, 2002. **23**(4): p. 267-285.
- [94]. Chiaburu, D. and S. Marinova, *Employee role enlargement: Interactions of trust and organizational fairness*. Leadership & Organization Development Journal, 2006. **27**(4): p. 168-182.
- [95]. Cohen, A., *Career stage as moderator of the relationships between organizational commitment and its outcomes: A meta-analysis* Journal of Occupational Psychology, 1991. **64**(1): p. 253-268.
- [96]. Feldman, D., *Career mobility and career stability among older workers*, in *Aging and Work in the 21st Century* K. Schultz and G. Adams, Editors. 2007, Lawrence Erlbaum: Mahwah, NJ.
- [97]. Pejtersen, J., et al., *The second version of Copenhagen Psychosocial Questionnaire*. Scandinavian Journal of Public Health, 2010. **38**(8): p. 8-24.
- [98]. Laine, M., et al., *Job insecurity and intent to leave the nursing profession in Europe* The International Journal of Human Resource Management, 2009. **20**(2): p. 420-438.
- [99]. Jarvis, C., S. MacKenzie, and P. Podsakoff, *A critical review of construct indicators and measurement model misspecification in marketing and consumer research*. Journal of Consumer Research, 2003. **30**(23): p. 199-218.
- [100]. Petter, S., D. Straub, and A. Rai, *Specifying formative constructs in information systems research*. MIS Quarterly, 2007. **31**(4): p. 623-656.
- [101]. Chin, W. and P. Newsted, *Structural equation modeling analysis with small samples using partial least squares analysis*, in *Statistical strategies for small sample research*, R. Hoyle, Editor 1999, Sage: Thousand Oaks, CA.
- [102]. Podsakoff, P., et al., *Common method bias in behavioral research: A critical review of the literature and recommended remedies*. Journal of Applied Psychology, 2003. **88**(5): p. 879-903.
- [103]. Gefen, D., D. Straub, and M. Boudreau, *Structural equation modeling techniques and regression: Guidelines for research practice*. Communications of the AIS, 2000. **7**(7): p. 1-78.
- [104]. Ringle, C. and S. Wende, *Smartpls 2.0*. 2009.
- [105]. Straub, D., M. Boudreau, and D. Gefen, *Validation guidelines for IS positivist research*. Communications of the AIS, 2004. **13**(1): p. 380-427.
- [106]. Barclay, D., D. Higgins, and R. Thompson, *The partial least squares approach to causal modeling: Personal computer adoption and use as an illustration*. Technology Studies, 1995. **2**(2): p. 285-309.
- [107]. Fornell, C. and F. Bookstein, *two structural equation models: Lisrel and PLS applied to consumer exit-voice theory*. Journal of Marketing Research, 1982. **19**(1): p. 440-452.
- [108]. Vowler, J., *Small teams support each other*. Computer Weekly, 2004: p. 28-29.
- [109]. Thibodeau, P., *Stress causes strains in IT shops*. Computerworld, 2006. **40**(34): p. 1-16.
- [110]. Tan-Solano, M. and B. Kleiner, *Virtual workers: Are they worth the risk?* Nonprofit World, 2003. **21**(6): p. 20-22.
- [111]. Tang, K. and Y. Tseng, *Industry-specific human capital, knowledge labour, and industry wage structure in Taiwan*. Applied Economics, 2004. **36**(2): p. 155-164.
- [112]. Stewart, J., *Train for the future invest in learning*. Training & Development, 2011. **65**(7): p. 54-57.