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RESEARCH NOTE

EXHAUSTION FROM INFORMATION SYSTEM CAREER EXPERIENCE: IMPLICATIONS FOR TURN-AWAY INTENTION[1]

Deborah J. Armstrong
Entrepreneurship, Strategy & Information Systems Department, College of Business, Florida State University,
821 Academic Way, Tallahassee, FL 32306-1110 U.S.A. {darmstrong@business.fsu.edu}

Nita G. Brooks
Computer Information Systems, Jones College of Business, Middle Tennessee State University,
MTSU Box 45, Murfreesboro, TN 37132 U.S.A. {nita.brooks@mtsu.edu}

Cynthia K. Riemenschneider
Management Information Systems Department, Hankamer School of Business, Baylor University,
1 Bear Place #98005, Waco, TX 76798-8005 U.S.A. {c_riemenschneider@baylor.edu}

While the U.S. economy is recovering slowly, reports tell us that the supply of information systems (IS) professionals is declining and demand is once again on the rise. With organizations challenged in their efforts to hire additional staff, IS professionals are being asked to do even more, often leading to burnout, turnover, and turnaway intentions. Building on Ahuja et al.'s (2007) work on turnover intentions and using the job demands–resources model of burnout as an organizing framework for the antecedents to exhaustion from IS career experience (EISCE), this illustrative research note draws attention to exhaustion in IS professionals that spans an individual's professional career. Findings indicate that IS professionals' perceived workload (demand) was associated with higher levels of EISCE, whereas fairness and perceived control of career (resources) were associated with lower levels of EISCE. The influence of EISCE on affective commitment to the IS profession (ACISP) was found to be negative and, ultimately, ACISP fully mediated the effect of EISCE on the intention to turn away from an IS career. The results suggest the importance of studying IS professionals' perceptions regarding the demands and resources associated with working in the IS field when testing exhaustion ***across*** *IS career experience.*

Keywords: Information systems, IS personnel, workforce, burnout, exhaustion, affective commitment, turnaway intention, occupational turnover

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The appendices for this paper are located in the "Online Supplements" section of the *MIS Quarterly*'s website (http://www.misq.org).

Introduction

Recent reports tell us that in the United States, the supply of information systems[2] (IS) professionals is being outstripped by the demand (Canales 2014; McDonnell 2011; Panko 2008), highlighting retention, once again, as an important strategic issue. The U.S. Bureau of Labor Statistics (Occupational Outlook Handbook) for the years 2012 to 2022 forecasts that employment in IT-related occupations is expected to grow by 22 percent, while all jobs will grow by approximately 10 percent (Thibodeau 2012).[3] Human resource (HR) professionals are asking how to retain valued IS professionals during this resurgence in demand. One avenue for understanding how to retain valued IS professionals may be through the exploration of burnout as it has been found to be correlated with turnover and turn-away (i.e., occupational turnover [Blau 2007]) intention (TAI) (see Appendix A for acronyms, definitions, and sources of all constructs).

Burnout is comprised of three dimensions: exhaustion, depersonalization, and reduced personal accomplishment (Lee and Ashforth 1996; Wright and Cropanzano 1998). Exhaustion represents "feelings of being emotionally overextended and depleted" (Maslach 1998, p. 69). Exhaustion is considered "the central quality of burnout and the most obvious manifestation of this complex syndrome" (Maslach et al. 2001, p. 402) and is widely viewed as the initial component of the burnout process (Maslach and Schaufeli 1993). Pawlowski et al. (2007) indicated that it might be more appropriate to view the other two dimensions (cynicism and reduced personal accomplishment) as symptoms but not constitutive components of burnout. As this is an exploratory study focused on reducing TAI, we concentrate on the exhaustion dimension.

IS studies have highlighted the role of exhaustion in determining outcomes such as turnover (e.g., Ahuja et al. 2007; Moore 2000; Rutner et al. 2008), but IS researchers have recently turned their attention to TAI and its connection with job-related burnout (Shropshire and Kadlec 2012). Within the burnout literature, researchers are beginning to recognize the importance of looking at work-related experiences across one's career (Barbier et al. 2013; Jourdain and Chenevert 2010), but the relationship between career-related exhaustion and TAI remains under-explored. The goal of this research is to examine how workplace experiences over an IS professional's career[4] may impact exhaustion from IS career experience (i.e., *the feeling of being overextended from one's IS work experience or IS career*) and TAI. To meet this goal, we adapt Ahuja et al.'s (2007) turnover intention model to the context of an IS professional's career and use the job demands–resources model of burnout[5] (JD–R; Demerouti et al. 2001) as a framework for organizing the antecedents of exhaustion from IS career experience (EISCE), represented as demands and resources.

The research reported here extends an important job-level causal variable leading to job turnover among IS professionals, exhaustion from IS work experience, to a career-level construct, exhaustion from IS career experience (EISCE). It illustrates that testing the application of job-level exhaustion to an IS professional's career is a useful endeavor and that EISCE has potential as an influential construct worth including in future research. The set of antecedents used in Ahuja et al. are adapted to the IS career experience (ISCE) context to test the model, opening the door for others to examine additional constructs previously found influential at the job level (e.g., role conflict, job security). An additional contribution is made through the explication of a disaggregated model of EISCE and TAI. By testing the influence of each demand and resource on EISCE, a detailed picture emerges that encourages further inquiry.

Theory Development

Adaptation of Ahuja et al.'s Turnover Model to IS Career Experience

We began with Ahuja et al.'s (2007) model because of its grounding in the IS literature (i.e., extension of Moore's 2000

[2]Within academia, computer science and information technology focus on the technology and produce technicians, while information systems focuses on the client and produces professionals akin to engineers (Gowan and Reichgelt 2010).

[3]The apparent inconsistency in terminology (IT and IS) is a manifestation of the divergence between academia and practice. In practice, IT is often utilized as the overarching term for the profession or work environment. In academia, the term IS is used to represent the phenomenon under study. Note that IT was utilized with the participants and IS was used in the manuscript.

[4]While Greenhaus et al. (2001, p. 91) use the phrases "professional career field" and "profession or career field," Joshi and Kuhn (2001, p. 122) use the phrases "IS career" and "IS profession." We use the term *IS professional's career* throughout the manuscript for consistency.

[5]An assumption in recent JD–R research is that work environment characteristics may evoke two psychologically different processes (burnout and engagement [Bakker et al. 2007]). Engagement is "an affective or positive, fulfilling state of mind" (Schaufeli et al. 2002, p. 74) and often influences positive work outcomes (e.g., performance [Schaufeli and Bakker 2004]). The current study is focused on burnout (and specifically exhaustion) because of our focus on TAI from the perspective of the IS profession.

seminal work on exhaustion in IS), and it is the most comprehensive and current model focused on exhaustion and turnover published in a premier IS journal. Due to the change in context of the study variables, we chose to use both qualitative and quantitative approaches to guide our inquiry. As part of the qualitative analysis, focus group interviews were conducted with 29 IS professionals (16 males and 13 females) working in three different organizations in the transportation, food, and technology industries in an effort to determine the applicability of this model to the career context. The interviewees held different positions in their respective organizations at the time of the study (e.g., programmers, analysts, engineers, database administrators, management, customer support, etc.) with 58.6 percent of the participants employed in more nonmanagerial positions. Based on the comments from the focus group interviews, we realized the importance of considering an individual's career instead of a specific job when looking at TAI.

Individuals in the focus groups highlighted the importance of exhaustion and turn-away for IS professionals and identified several of Ahuja at al.'s constructs as relevant across their ISCE. The exploratory focus group sessions revealed the need to study the concepts and helped identify key constructs that were then complemented with our own understanding of the literature. For example, when asked why individuals leave the IS profession, one participant stated "stress and burnout." Another participant noted "constant change, constant learning equals burnout," and a third stated "people leave IT because of the stress caused by customer demands." Triangulating the interviews with the literature, we developed a preliminary model of EISCE and TAI (Figure 1). A detailed overview of the model is provided next, and a mapping of Ahuja et al.'s constructs to the ISCE context is included in Appendix B.

Exhaustion has been found to be a significant correlate for TAI (e.g., Blau 2007; Lee et al. 2000). If an individual perceives that remaining in the same profession will not alleviate the aspects of the career experience that the individual finds exhausting, one cure may be to change professions. For instance, if an individual is exhausted from his/her ISCE (e.g., overextended due to working in a field that requires retooling every year or so), then s/he might turn away (e.g., move to the teaching profession). To confirm this relationship within the context of ISCE, we hypothesize

Hypothesis 1: EISCE will positively influence TAI.

We have included commitment as a key antecedent to understanding turn-away intention. While there are three types of commitment identified in the literature (affective, normative, and continuance), the focus of this research is on the impact of factors that are more affective in nature; therefore, we chose to focus on the affective commitment dimension.[6] A negative link between job-focused exhaustion and affective organizational commitment has been established in the literature (e.g., Ahuja et al. 2007; Jourdain and Chenevert 2010), and it is proposed that a similar relationship will exist across an individual's ISCE. As an individual becomes exhausted by his/her ISCE, s/he may become disillusioned with and less attached to the profession. Affective commitment to the IS profession (ACISP) has been found to have a significant impact on IS professional behavior (i.e., turnover for professional advancement [Cho and Huang 2012]) and to be an important precursor of turn-away intention (Blau et al. 2003; Chang et al. 2007; Snape and Redman 2003). In addition, few studies have tested the mediating role of affective commitment within the context of exhaustion and turnover intention, but there has been some initial support for mediation effects (Tourigny et al. 2013). To confirm these relationships within our context, we hypothesize

Hypothesis 2: EISCE will negatively influence ACISP.

Hypothesis 3: ACISP will negatively influence TAI.

Hypothesis 4: ACISP will mediate the EISCE–TAI relationship.

We used the JD–R framework to provide structure for the antecedents included in the Ahuja et al. model, and to categorize the antecedents as demands or resources in an effort to understand their differing influence. In using the JD–R model of burnout as an organizing framework for the antecedents of EISCE and TAI, we should acknowledge an assumption of the model that notes that every profession may have characteristics associated with exhaustion, and it is possible to model these characteristics as demands (activities that require mental and/or emotional effort to accomplish) and resources (mental or emotional features of the environment that aid in achieving activities) (Demerouti et al. 2001; Mauno et al. 2007).

[6]While researchers have examined similar constructs (e.g., career commitment [Arnold 1990]; career entrenchment [Carson et al. 1995]), we chose to use affective commitment because of our focus on affective components. Based on the work of Boon and Kalshoven (2014), affective commitment to the IS profession (ACISP) can be said to represent an attitude and attachment toward the profession; whereas engagement is a positive state of well-being (Bakker and Leiter 2010) that is often characterized as the positive opposite of burnout (Maslach and Leiter 1997; Schaufeli and Bakker 2004). Thus, consistent with our emphasis on TAI, we focus on ACISP.

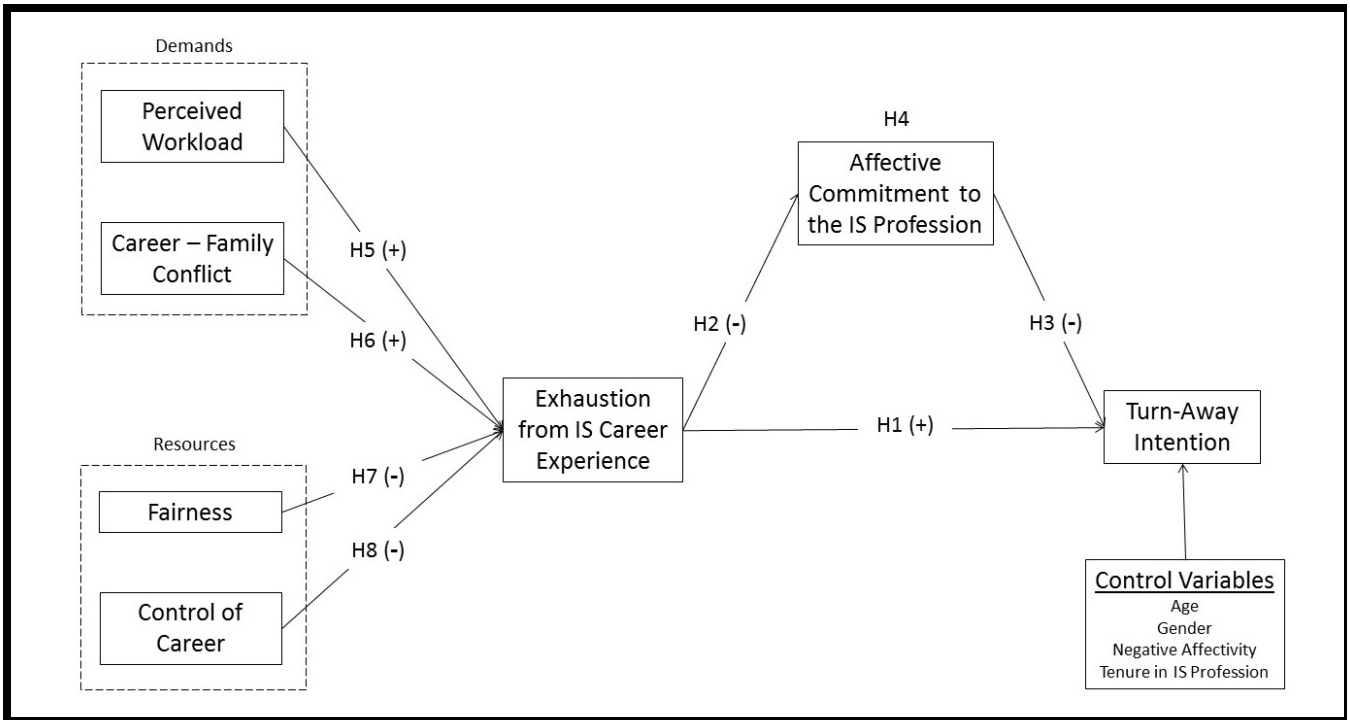


Figure 1. Model with Hypotheses

Additionally, it has been shown that employees who have access to more job resources are better able to cope with organizational change—that is, resources moderate the demands–exhaustion relationship (known as the *buffering hypothesis* [Cohen and Willis 1985]). While researchers have explored the buffering hypothesis, the results have been mixed (see Appendix C for a representative sample of the findings). According to Hu et al. (2013, p. 358), "most studies using the JD–R model do not support the idea that job demands and job resources interact statistically, and even the few studies that reported significant interaction effects provide only weak and inconsistent evidence." Recently, scholars have also begun to explore mediation effects within the JD–R model (Consiglio et al. 2013; Guglielmi et al. 2012), but Akhtar and Lee (2010, p. 195) assert, "There is thus some initial support for the mediation hypothesis, but much remains to be done by way of testing whether this finding can be generalized." As we are utilizing Ahuja et al.'s model to extend an important job-level causal variable leading to job turnover among IS professionals (i.e., exhaustion from IS work experience), to a career-level construct (exhaustion from IS career experience), we chose to remain consistent with Ahuja et al. and utilized only concepts from their study. Therefore, we leave interaction extensions for future researchers.

IS Career Experience Demands (ISCE Demands)[7]

Perceived workload (PW) has often been identified as a predictor of job-focused exhaustion, particularly for IS professionals (e.g., Kouvonen et al. 2005; Rigas 2009). PW is applicable to the context of ISCE, because the IS work environment has been characterized as having work practices that often include long hours, late nights, after-hour meetings, on-call duty, and a continual state of rush or crisis (Ahuja 2002). The IS field, by its very nature and reliance on information and communication technologies, allows work to always be accessible. In a study of IS professionals conducted by Riemenschneider et al. (2006), one participant stated, "I was on call 24 hours a day 7 days a week, worked every Sunday, got calls in the middle of the night" (p. 68).

[7]Crawford et al. (2010) categorize demands into challenges (positive: workload) and hindrances (negative: career–family conflict). Challenge demands are stressors that have the potential to promote mastery and can be perceived as growth opportunities, whereas hindrance demands are stressors that have the potential to limit mastery and can be perceived as barriers (Crawford et al. 2010). While we acknowledge this development in the JD–R literature, we are testing the Ahuja et al. model at the level of the profession/career and leave the exploration of this distinction for future researchers.

Due to the high frequency of this construct's occurrence over a variety of studies, the PW characteristic may not be job specific but may apply to many areas of the IS field. One of our focus group participants stated, "the demands from customers who don't understand what's required or involved behind a new [feature] request…can be very stressful." This example may also illustrate that perceptions regarding workload are not necessarily linked to one job (e.g., programmer, consultant) or one organization (e.g., IBM, KPMG) but may permeate the culture of the IS profession. If an individual moves through his/her career in IS and perceives a consistent demand for an excessive amount of work to be accomplished in the allotted time, the individual may become exhausted with the IS profession.

Hypothesis 5: Perceived workload across ISCE will positively influence EISCE.

An additional factor that can be extremely stressful and exhausting is work–family conflict (WFC) (Ahuja et al. 2007; Netemeyer et al. 2004). In this study, we look at individuals' time in their IS career to examine career–family conflict (CFC). The concept illustrates the influence of the continued (and often incompatible) demands career and family life may place on individuals across their experience in the IS field. Examining the role of CFC acknowledges the underlying identification mechanisms at play as we define ourselves by our various responsibilities in life. While one's responsibilities can include career, family, community, civic, etc. (Wolfram and Gratton 2014), we focus on career and family. We assert that one's career can have a certain level of importance; it can be a greater (or lesser) part of an individual's life responsibilities. If one's career takes on greater meaning, this importance is not typically job-specific but focused on the portfolio of IS career experience.

Additionally, many characteristics of the IS profession have been viewed negatively (e.g., on-call status), and the inherent pressures they present can impact the balance between work/career and family (Armstrong et al. 2007). Consistent with our interviews, a participant from the study by Riemenschneider et al. (2006, p. 68) stated, "the pace [of IT] is very fast which can cause problems when trying to balance home and work life." Because these characteristics are found throughout the IS profession, we assert that the conflict between home and career demands can manifest across individuals' ISCE and influence exhaustion.

Hypothesis 6: Perceived CFC across ISCE will positively influence EISCE.

IS Career Experience Resources (ISCE Resources)[8]

As a key resource provided by one's ISCE, fairness is important for our context. If an IS professional perceives that the outcomes received (e.g., promotions, responsibilities) are fair over the course of his/her career experience, then fairness may be linked with the profession and not just a particular organizational context. Ahuja et al. hinted at the importance of looking beyond the job toward the profession as it relates to fairness: "pay and reward equity was important to the RWs [road warriors] we interviewed, especially as they compared their job and career path to those at headquarters" (p. 3). Consistent with Ahuja et al., we expect that the collective perception of fairness across an individual's ISCE may negatively influence EISCE.

Prior qualitative studies have found that perceived inequities and the idea of fairness in the IS profession exist related to pay, promotion, and workload (Allen et al. 2004). Clem et al. (2008) found that fairness with regard to pay was an important predictor of a career-level outcome: career satisfaction. In a study of military personnel, Ball (2013) found that a perceived lack of career-related fairness was not related to a specific job but to characteristics of the field (e.g., physical tasks). Consistent with these studies, in our focus group interviews, several individuals commented on the inequities across the IS field and noted specifically that pay and promotion inequities exist. For example, one participant stated "pay/promotion inequities based on race/gender exist (although hard to separate)," while another noted "there are definitely some [salary] inequities."

As noted by Howard and Cordes (2010, p. 411) and empirically supported in their research study, experiencing unfair treatment "consumes and drains valuable emotional energy, thus depleting emotional and cognitive resources and contributing to emotional exhaustion." We contend that fairness extends across an individual's ISCE and impacts his/her perceptions of the IS field, and posit that if an individual perceives that fairness exists across his/her ISCE, s/he will experience lower levels of EISCE.

[8]Recent developments in the JD–R literature have placed resources into two categories: work-related and personal. Work-related resources are those aspects of the work environment that may reduce demands or associated costs, help achieve work goals, and/or stimulate personal growth (Bakker and Demerouti 2007; Schaufeli and Bakker 2004). Personal resources refer to individuals' sense of their ability to positively impact their environment (Hobfoll et al. 2003). As we are testing the Ahuja et al. model within the context of the IS profession, we leave the exploration of this distinction to future research.

Hypothesis 7: Perceived fairness across ISCE will negatively influence EISCE.

At the job level, Amick and Ostberg (1987) suggest that the effects of stress on the health of a worker can depend upon the amount of control the worker is able to exert in performing his/her job duties (i.e., autonomy). When looking across one's ISCE, perceived control of career may enhance the capacity to adapt one's behavior in response to new challenges as it provides opportunities for individuals to select positions that allow them to continue to develop their skills and abilities. "Career control reflects the extent to which individuals believe they can predict and influence the direction of their careers" (Ito and Brotheridge 2001, p. 410). A respondent in a previous research study shared, "I've reinvented my career four times at this company, without ever leaving IT…and it's been a great opportunity that I don't see in other industries" (Armstrong et al. 2011, p. 6).

Control over one's career also provides individuals with opportunities to adjust their work according to their needs, abilities, and circumstances. This may be particularly true of professionals who are often expected to invest most of their time and energy in work (Blair-Loy 2003). Individuals that feel in control of their career can choose when and how to dedicate time to their career. Additionally, studies have found a negative relationship between control and exhaustion at the level of the profession (federal civil servants [Ito and Brotheridge 2001]; nurses [Landsbergis 1988]). Within the IS profession, we posit that individuals with higher levels of perceived control over their career will experience lower levels of EISCE.

Hypothesis 8: Perceived control of career across ISCE will negatively influence EISCE.

Our model illustrates the application of the concepts of exhaustion and turnover to the domain of an IS professional's career by presenting a set of representative antecedents adapted from Ahuja et al. and viewing them through the JD–R lens. This opens the door for others to examine additional constructs that prior research has found influential with regard to turnover intention (e.g., role conflict, job security).

Methodology

Study Design

This research is part of a larger three-year study. As noted previously, focus group interviews were conducted across three large organizations with 29 IS professionals. Several of the aspects the participants addressed in the interviews were not found in the literature at the career level (e.g., control of career). Based on the comments from the focus group interviews, we realized new measures would need to be adapted from the literature. For example, the concept of autonomy was captured as control of career, because the focus group participants were attentive to their ability to influence their career direction as opposed to their freedom with regard to job processes across their career.

A pilot study was conducted prior to the first year's data collection to ensure content validity. The pilot study consisted of the individuals that participated in the focus group interviews as well as others relevant to the study (e.g., information systems representatives from local businesses). A total of 63 individuals completed the pilot instrument. The pilot study results reinforced the constructs, supported the validity of the constructs at the career level, and provided the needed confirmation to move forward with the data collection.

We contacted the CIOs of several firms in the south central United States, and each CIO solicited participation from his/her IS employees. Individuals who had responded to the first year's data collection were sent an e-mail explaining the purpose of the ongoing study and the third data collection e-mail stated,

> As you may recall, over the last two years you have participated in our research project by completing surveys related to your experiences as an IT professional. Your contribution has been most beneficial in helping us better understand the IT professional.

The e-mail contained a link to the survey and requested continued participation.

Participants for the main study were individuals working in IS across several industries, including healthcare, government, IS services/software, and transportation. Responses were received from 348 of the 500 individuals that were contacted, giving us a response rate of 69.6 percent and a final sample of 293 usable responses. The data used in this analysis is from the year three data collection, and Table 1 provides the respondent demographics. The average age of the participants was approximately 40 with 58 percent being male. The participants represented a variety of IS positions. The average number of organizations for which the individuals worked as an IS professional was 2.7, and the average tenure in IS was just over 14 years.

Measures

The questionnaire items were adapted from validated instruments. Changes were made to the instrument based on the pilot study and questions were limited to asking respondents

Table 1. Participant Demographics (n = 203)	
Gender	
Male	58.0%
Female	42.0%
Age	
20–29	16.7%
30–39	34.8%
40–49	31.4%
50–59	14.3%
60+	2.7%
Ethnicity	
White	93.5%
African-American	4.4%
Hispanic	0.3%
Other	1.7%
Education	
Some College	14.0%
Associate's Degree	10.9%
Undergraduate Degree	60.8%
Master's Degree	13.7%
Missing	5.8%
Marital Status	
Never Married	12.3%
Married/Living with Partner	72.0%
Separated/Divorced	11.3%
Widowed	1.0%
Missing	3.4%
Industry	
Transportation	36.6%
IT Services/Software	27.0%
Healthcare	17.1%
Other	10.8%
Government	6.8%
Missing	1.7%
Position	
Software Developer	33.9%
IS/IT Director or Manager	11.3%
Project Manager or Team Lead	11.3%
Technical Support Staff (Hardware and Software)	11.0%
Business or Systems Analyst	9.6%
Database Administrator	6.3%
Other	15.9%
Missing	0.7%
Tenure in the IS Profession	
Mean	14.4
Standard Deviation	9.3

about their perceptions across their ISCE rather than within their current organization or job. Appendix D provides the constructs, items, stems, and sources of the measures used in this study. All items were measured on a seven-point Likert-type scale (1 = *strongly disagree;* 7 = *strongly agree)* with the exception of negative affectivity, which was measured using a five-point Likert-type scale (1 = *very slightly or not at all;* 5 = *extremely*). The CFC construct items included a *not applicable* option. For the perceived control of career construct, items from two scales (control [Bordia et al. 2004]; power [Ashford et al. 1989]) were included. Consistent with Ahuja et al., the MBI-GS[9] was adapted to measure EISCE. Since we were examining the constructs across an individual's ISCE, the MBI scale was adapted from a temporal (i.e., frequency) scale to a seven-point Likert-type agreement scale.[10]

Age, tenure in the IS field, and gender were single item measures used as control variables in the model. Additionally, we utilized the trait of negative affectivity as a control variable as it represents a stable personality dimension (Roberts and DelVecchio 2000). Negative affectivity provides an indication of consistent feelings of anger, fear, and nervousness that individuals experience across time and situations (Watson 2000) that can skew self-report data. We did not control for job as we were looking across the participants' ISCE.

Analysis and Results

SmartPLS version 2.0 (Ringle et al. 2005) was used following the approach outlined by Chin (1998) for reflective measures to evaluate construct reliabilities and the convergent and discriminant validity of the model. SmartPLS was chosen to analyze the model. It is well-suited for analyzing a variety of stages of dependent and independent variables and is appropriate for exploratory research, since it shares the same sample size and distribution requirements as ordinary least squares regression (Gefen et al. 2011). Further, the sample size required for SmartPLS analysis is appropriate following the guidelines of Hair et al. (2011) and Barclay et al. (1995) in that the sample is at least 10 times the largest number of structural paths directed at a construct (n = 293 versus 40). We document the tests performed to validate our model in Appendix E, which includes tests for convergent and discriminant validity and common method bias. The results of these tests demonstrate that our model meets or exceeds the rigorous standards expected in IS research (Straub et al. 2004). As the measurement model demonstrated adequate validity, the structural model was evaluated next.

Applying SmartPLS using the standard bootstrap resampling procedure (1,000 samples) to assess the significance of the paths, the structural research model was tested. Prior to evaluating the model hypotheses, the significance of the control variables was examined. Only negative affectivity ($\beta = -0.104$, $p < .05$) was significantly related to TAI, indicating that an individual's disposition may impact his/her TAI. Each of the constructs in the structural model was analyzed as a reflective construct. We compared the adjusted R^2 of the theoretical model ($R^2 = .555$) with the saturated one ($R^2 = .560$) and found that all relationships stayed significant (with the exception of the negative affectivity control variable), and the effect size of the additional paths was small ($f^2 = .013$) (Gefen et al. 2011). A pseudo F-test for the change in R^2 was calculated (f^2 * (n-k-1) where n = sample size and k = number of independent variables; Mathieson et al. 2001). The change in R^2 was not significant at the 0.05 level (F=3.71, df: 1, 293), indicating that our model had sufficient predictive power. The results of the analysis for the hypothesized relationships including the standardized regression weights and level of significance can be found in Table 2; Figure 2 provides the final model paths. The R^2 values for TAI, ACISP, and EISCE were .555, .225, and .612 respectively. The results of the mediation test (see Appendix F for details of the procedure) are presented in Table 3. ACISP was found to mediate the relationship between EISCE and TAI (H4). To assess the magnitude of the indirect effects (Helm et al. 2010), the variance accounted for (VAF) was calculated and is shown in the last column of Table 3. For the EISCE–ACISP–TAI path, a VAF of 0.984 and a nonsignificant path from EISCE to TAI suggests that ACISP fully mediates the relationship between EISCE and TAI.

Discussion

The model had reasonable explanatory power accounting for just over half of the variance in TAI, implying that EISCE and ACISP are key factors influencing turn-away intention. With regard to ISCE demands, **PW** was a strong predictor ($\beta = 0.617$, $p < .001$) of EISCE. While not directly comparable, the strength of the relationship between PW and EISCE seems even more pronounced than Ahuja et al.'s finding ($\beta = 0.43$, $p < .001$). This lends credence to the idea that the mental and emotional effort required to meet workload expectations is

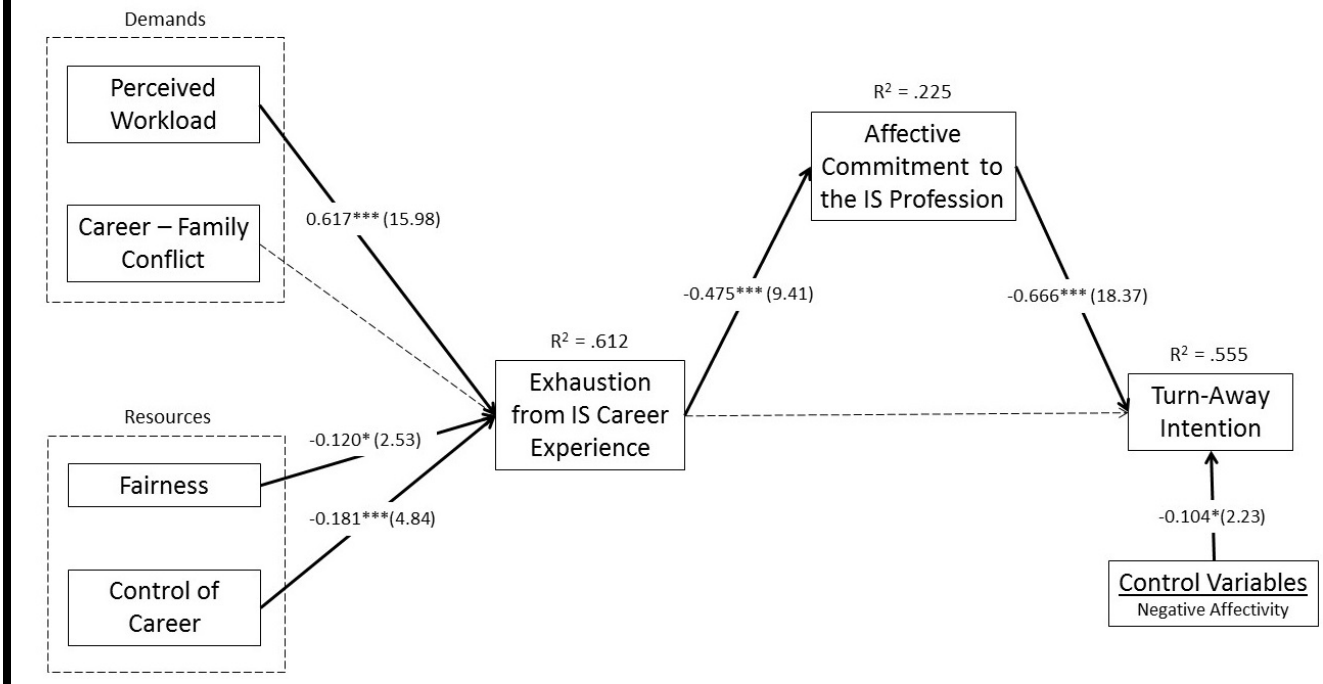
[9]The Maslach Burnout Inventory (MBI; Maslach and Jackson 1981) was developed for human service professionals. Later the inventory was adapted to generalize to other occupations (MBI-GS; Schaufeli et al. 1996).

[10]The original scale provided anchors based on an annual assessment of the individual's time within an organization (Barnett et al. 1999). Previous research has provided evidence for the validity of using a Likert-type scale to measure burnout (e.g., Demerouti et al. 2001; Garrosa et al. 2010; Ladstatter et al. 2010), and we believe the adaptation was appropriate.

Table 2. Path Analysis Results

Hypothesis	Path	Regression Weight (Standardized)	P-Value	Results
1	EISCE → TAI (+)	0.005	>0.05	Not Supported
2	EISCE → ACISP (-)	-0.475	0.001	**Supported**
3	ACISP→ TAI (-)	-0.666	0.001	**Supported**
4	EISCE → ACISP → TAI	N/A	N/A	**Supported** See Table 3
5	PW → EISCE (+)	0.617	0.001	**Supported**
6	CFC → EISCE (+)	0.076	>0.05	Not Supported
7	FAIR → EISCE (-)	-0.120	0.05	**Supported**
8	CTRL → EISCE (-)	-0.181	0.001	**Supported**

Table Legend: ACISP = Affective Commitment to the IS Profession; CFC = Career–Family Conflict; CTRL = Control of Career; EISCE = Exhaustion from IS Career Experience; FAIR = Fairness; PW = Perceived Workload, TAI = Turn-Away Intention



Notes: 1. The numbers in the path model represent β (T-value); *p < 0.05; **p < 0.01; ***p < 0.001.
2. Bold, solid hypothesized paths are significant; non-bold, dashed paths are nonsignificant.

Figure 2. Final Model Paths

Table 3. Mediation Test

Relationship		Path Coefficient P-Value	Mediated Relationship	Sobel Statistic	Std Error	Sobel Z P-Value	VAF
EISCE >	TAI	NS					
EISCE >	ACISP	0.001	**EISCE-ACISP-TAI H4**	8.371	0.038	0.000	**0.984**
ACISP >	TAI	0.001					

Table Legend: ACISP = Affective Commitment to the IS Profession; EISECE = Exhaustion from IS Career Experience; TAI = Turn-Away Intention.

exhausting and perhaps sustained over one's ISCE. Counter to previous research that found a strong relationship between WFC and job-focused exhaustion (Ahuja et al. 2007; Bakker et al. 2005), we did not find a significant relationship between **CFC** and EISCE. While WFC seems to exist and have an impact within an IS job, it might not carry over across one's ISCE. We speculate that given the importance of family systems to individuals, perceptions of conflict within a single job may induce the individual to change to a different role, thereby reducing the impact of the conflict across one's career.

With regard to ISCE resources, **fairness** negatively influenced EISCE ($\beta = -0.120$, $p < .05$). This is in stark contrast to Ahuja et al.'s finding of no relationship at the job level. Interestingly, researchers in a variety of domains have found a negative relationship between fairness and emotional exhaustion at the job level (for IS, see Moore 2000; Shih et al. 2013; for manufacturing, see Bernerth et al. 2011; for police personnel, see McCarty and Skogan 2013). Perhaps this variance in findings may be attributed to different samples (e.g., Ahuja et al.'s "road warriors"). Additionally, this finding provides quantitative support for the comments provided by the focus group participants related to such things as pay and promotion inequities in the profession and sheds light on the potential importance of perceived fairness beyond the current job. We speculate that fairness may reduce EISCE through the promotion of opportunities for personal growth and development perhaps not found in Ahuja et al.'s road warrior context. **Control of career** also negatively influenced EISCE ($\beta = -0.181$, $p < .001$). Thus the ability to influence the direction of one's IS career seems to lessen the feeling of being overextended or fatigued from an IS career.

With regard to outcomes of EISCE, we found a negative relationship between **EISCE** and **ACISP** ($\beta = -0.475$, $p < .001$) and a negative relationship between **ACISP** and **TAI** ($\beta = -0.666$, $p < .001$). We also found that ACISP fully mediated the relationship between EISCE and TAI. This may indicate that when an individual is exhausted from an IS career, s/he may contemplate withdrawal from the source of the exhaustion (i.e., withdrawal from the IS profession via decreased ACISP and ultimately increased TAI).

Limitations

Before highlighting the implications of this work, it is important to acknowledge the study's limitations. The fact that the CIO of each organization encouraged participation may have increased the potential for response bias. To minimize bias, CIO contact was made only at the first data collection (researchers made the remaining contacts), anonymity of each respondent was guaranteed, and results were reported only in the aggregate. Recency bias may also have been a factor in that the current position and/or organization may have unduly influenced participant responses. While we acknowledge these potential biases, we believe focusing on the profession and asking respondents to look across their ISCE via the e-mail announcements and question stems helped mitigate these issues.

Related to this is the adaptation of items to reflect a career/profession perspective. Because some items may not clearly reflect a career/profession perspective, future researchers should consider alternatives to the items used in this study. Toward that end, we provide suggestions for modified items for the constructs of EISCE, perceived workload, and fairness over the career of an IS professional that may be tested in future studies. These items appear in Appendix G. Another measurement limitation is related to the perceived control of career construct, which was measured with two variables (control and power) that loaded onto one factor. We encourage researchers to explore other options for capturing the idea of control over one's career.

Another possible limitation relates to the anchor types for the EISCE items (which were modified from their original form). While we believe the modification was appropriate for the context, future research comparing the anchor types (frequency versus agreement or the use of both) is encouraged, and potential items are provided in Appendix G. Furthermore, we acknowledge the limitation of attempting to capture perceptions over an extended period of time using a survey instrument; we recommend future studies follow multiple IS professionals over the course of their careers. Formulating a longitudinal qualitative case study would allow researchers to

delve deeper into the demands and resources encountered and utilized over the course of an IS professional's career. Future research should be conducted to more tightly define the boundaries of generalizability considering the nuance that a career is potentially comprised of multiple jobs across multiple organizations and to assess the scale validity of the proposed career construct items. Nonetheless, the findings in this exploratory study add to the literature and serve as an initial point upon which scholars may build research on IS career perceptions.

Implications and Future Research

This study makes two principle contributions to research and practice. The first contribution is the extension of an important job level construct leading to turnover among IS professionals (work exhaustion) to the career level (EISCE). This research illustrates the importance of EISCE through the empirical testing of the relationships between EISCE and TAI and a limited set of antecedents of EISCE. The goal of this study was to break ground in the area of EISCE and TAI and illustrate that the application of the job-level exhaustion concept to an IS professional's career is a worthy undertaking. Future research should examine the omitted constructs that prior research has found important at the job level (e.g., job security, role ambiguity, etc.), more recent developments in the JD–R literature (e.g., hindrance versus challenge demands; individual versus career resources), as well as other factors related to retention (e.g., engagement). For example, we did not retain role conflict or role ambiguity, since the constructs relate specifically to roles an individual holds at a given time. As we look across an individual's ISCE, a perspective is required that takes the individual beyond current circumstances and examines factors that can be conceptualized using a career perspective. Nevertheless, due to the importance of these factors in job-related IS research, future research should explore the applicability and translation of these factors to career-related experiences.

Our findings suggest that perceptions of fairness and its importance to individuals extend beyond any one particular job and across an individual's ISCE. This finding is particularly pertinent as HR managers are limited in that they are only able to control job/organizational factors. With organizations such as General Motors adding more than 1,500 IS professionals in 2013/2014 (Bomey 2012) and another 1,000 IS professionals in 2014/2015 (Rosenberg 2014), HR managers should be cognizant of the importance of fairness perceptions for new hires and existing IS employees. Organizational training efforts may encourage and enable managers to more carefully enact procedures and outcomes that are perceived as fair. The power of this approach may be realized in the benefit of a steady pool of potential qualified IS employees.

Our second contribution is the development of a disaggregated model of the antecedents of EISCE and TAI. In previous implementations of the JD–R model, authors (e.g., Demerouti et al. 2001) frequently aggregate the demands and resources into second-order factors, losing data and detail in the process. By keeping the antecedents as first-order constructs, we were able to see the influence of specific resources and demands on EISCE and ultimately TAI.

For example, the discovery of the influence that perceived control of career seems to have with regard to EISCE provides important insights. Active involvement with and leadership in professional organizations may provide opportunities for individuals to see career options and to exert control over their career. By networking with other IS professionals and shaping the direction of professional organizations, IS professionals may steer the field in such a way as to influence individual outcomes (e.g., decrease exhaustion). Organizations may invest in IS professionals by providing training and/or support for certifications to enhance individuals' skills, which they could use to influence the direction of their career (e.g., gain PMP certification and move into project management). Organizations should examine various ways to interact with and reward IS personnel through activities such as accommodations in work schedules or an increased focus on individual career development. Increased opportunities to work from home or work in a different industry may impact factors such as perceived control of career, potentially reducing TAI. Future research may utilize the model from this study as a foundation to explore other profession-related antecedents (e.g., professional identity), outcomes (e.g., career entrenchment), and burnout dimensions (e.g., depersonalization) that may be important to the IS field.

Overall, the findings of this study highlight the importance of having a realistic career preview (Premack and Wanous 1985) for individuals in the IS profession. Understanding the characteristics of the profession can potentially assist in reducing EISCE. When entities such as universities, professional associations, and even organizations communicate with potential IS professionals, the message should be clear as to what the IS profession promises in terms of resources (e.g., fairness) and what is expected in terms of demands (e.g., work load).

Conclusion

Building on Ahuja et al.'s turnover intention model and the JD–R model of burnout, this illustrative research note pro-

vides initial evidence of the influence of the ISCE demands and ISCE resources on EISCE, ACISP, and TAI. We surmise that there are theoretically and practically interpretable relations among the antecedents and outcomes of EISCE that require further investigation. With the small number of new entrants into the profession, it is important to retain as many individuals in the IS workforce as possible to meet the call for skilled IS professionals. The study of IS workforce issues at the career level is paramount; while turnover is costly to organizations, turn-away is even more detrimental to the field.

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References

Ahuja, M. K. 2002. "Women in the Information Technology Profession: A Literature Review, Synthesis and Research Agenda," *European Journal of Information Systems* (11:1), pp. 20-34.

Ahuja, M. K., Chudoba, K. M., Kacmar, C. J., McKnight, H., and George, J. F. 2007. "IT Road Warriors: Balancing Work–Family Conflict, Job Autonomy and Work Overload to Mitigate Turnover Intentions," *MIS Quarterly* (31:1), pp. 1-17.

Akhtar, S., and Lee, J. S. Y. 2010. "Job Burnout: Toward an Integration of Two Dominant Resource-Based Models," *Psychological Reports* (107:1), pp. 193-208.

Allen, M., Reid, M., and Riemenschneider, C. K. 2004. "The Role of Laughter When Discussing Workplace Barriers: Women in Information Technology Jobs," *Sex Roles: A Research Journal* (50: 3-4), pp. 177-189.

Amick, III, B. C., and Ostberg, O. 1987. "Office Automation, Occupational Stress and Health: A Literature Analysis with Specific Attention to Expert Systems," *Office Technology and People* (3:3), pp. 191-191.

Armstrong, D. J., Reid, M. F., Riemenschneider, C. K., and Gomillion, D. L. 2011. "The Perceived Uniqueness of the IS Profession: The Role of Gender," in *Proceedings of the 17th Americas Conference on Information Systems,* Detroit, MI.

Armstrong, D. J., Riemenschneider, C. K., Allen, M. W., and Reid, M. F. 2007. "Advancement, Voluntary Turnover and Women in IT: A Cognitive Study of Work-Family Conflict," *Information and Management* (44:2), pp.142-153.

Arnold, J. 1990. "Predictors of Career Commitment: A Test of Three Theoretical Models," *Journal of Vocational Behavior* (37:3), pp. 285-302.

Ashford, S. J., Lee, C., and Bobko, P. 1989. "Content, Causes and Consequences of Job Insecurity: A Theory-Based Measure and Substantive Test," *Academy of Management Journal* (22:4), pp. 803-829.

Bakker, A. B., and Demerouti, E. 2007. "The Job Demands-Resources Model: State of the Art," *Journal of Managerial Psychology* (22:3), pp. 309-328.

Bakker, A. B., Demerouti, E., and Schaufeli, W. B. 2005. "The Crossover of Burnout and Work Engagement among Working Couples," *Human Relations* (58:5), pp. 661-689.

Bakker, A. B., Hakanen, J. J., Demerouti, E., and Xanthopoulou, D. 2007. "Job Resources Boost Work Engagement, Particularly When Job Demands are High," *Journal of Educational Psychology* (99:2), pp. 274-284.

Bakker, A. B., and Leiter, M. P. 2010. "Where to Go From Here: Integration and Future Research on Work Engagement," in *Work Engagement: A Handbook of Essential Theory and Research,* A. B. Bakker and M. P. Leiter (eds.), Hove, East Sussex, UK: Psychology Press, pp. 181-196.

Ball, R. 2013. "Embracing the Women: A Longitudinal View of Attitudes to Women Service Personnel among Their Peers 1994 and 2010," in *Proceedings of the 2013 International Biennial Conference of the Inter-University Seminar on Armed Forces and Society*, Chicago, IL, October 25-27.

Barbier, M., Dardenne, B., and Hansez, I. 2013. "A Longitudinal Test of the Job Demands–Resources Model Using Perceived Stigma and Social Identity," *European Journal of Work and Organizational Psychology* (22:5), pp. 532-546.

Barclay, D. W., Higgins, C. A., and Thompson, R. 1995. "The Partial Least Squares Approach to Causal Modeling: Personal Computer Adoption and Use as Illustration," *Technology Studies* (2:2), pp. 285-309.

Barnett, R. C., Brennan, R. T., and Gareis, K. C. 1999. "A Closer Look at the Measurement of Burnout," *Journal of Applied Biobehavioral Research* (4:2), pp. 65-78.

Bernerth, J. B., Walker, H. J., Walter, F., and Hirschfeld, R. R. 2011. "A Study of Workplace Justice Differences During Times of Change: It's Not All About Me," *Journal of Applied Behavioral Science* (47:3), pp. 336-359.

Blair-Loy, M. 2003. *Competing Devotions: Career and Family among Women Executives,* Cambridge, MA: Harvard University Press.

Blau, G. 2007. "Does a Corresponding Set of Variables for Explaining Voluntary Organizational Turnover Transfer to Explaining Voluntary Occupational Turnover," *Journal of Vocational Behavior* (70:1), pp. 135-148.

Blau, G., Tatum, S., and Ward-Cook, K. 2003. "Correlates of Professional Versus Organizational Withdrawal Cognitions," *Journal of Vocational Behavior* (63:1), pp. 72-85.

Bomey, N. 2012. "GM Wants to Hire 1,500 Tech Experts," *USA Today*, October 9 (available online at http://www.usatoday.com/story/money/business/2012/10/09/gm-recruiting-tech-experts/1622371/; retrieved October 9, 2012).

Boon, C., and Kalshoven, K. 2014. "How High-Commitment HRM Relates to Engagement and Commitment: The Moderating Role of Task Proficiency," *Human Resource Management* (53:3), pp. 403-420.

Bordia, P., Hunt, E., Paulsen, N., Tourish, D., and Difonzo, N. 2004. "Uncertainty During Organizational Change: Is it All About Control?," *European Journal of Work and Organizational Psychology* (13:3), pp. 345-365.

Canales, A. 2014. "Phoenix sees 19% increase in IT jobs as Demand Outstrips Labor Supply," *Phoenix Business Journal,* May 21(available online at: http://www.bizjournals.com/phoenix/blog/techflash/2014/05/phoenix-sees-19-increase-in-it-jobs-as-demand.html?page=all; retrieved August 12, 2014).

Carson, K. D., Carson, P. P., and Bedeian, A. G. 1995. "Development and Construct Validation of a Career Entrenchment Measure," *Journal of Occupational and Organizational Psychology* (68:4), pp. 301-320.

Chang, H. T., Chi, N. W., and Miao, M. C. 2007. "Testing the Relationship Between Three-Component Organizational/Occupational Commitment and Organizational/Occupational Turnover Intention Using a Non-Recursive Model," *Journal of Vocational Behavior* (70:2), pp. 352-368.

Chin, W. W. 1998. "The Partial Least Squares Approach for Structural Equation Modeling," in *Modern Methods for Business Research,* G. A. Marcoulides (ed.), Mahwah, NJ: Lawrence Erlbaum Associates, pp. 295-336.

Cho, V., and Huang, X. 2012. "Professional Commitment, Organizational Commitment, and the Intention to Leave for Professional Advancement: An Empirical Study on IT Professionals," *Information Technology & People* (25:1), pp. 31-54.

Clem, K. J., Promes, S. B., Glickman, S. W., Shah, A., Finkel, M. A. 2008. "Factors Enhancing Career Satisfaction Among Female Emergency Physicians," *Annals of Emergency Medicine* (51:6), pp. 723-728.

Cohen, S., and Wills, T. A. 1985. "Stress, Social Support, and the Buffering Hypothesis," *Psychological Bulletin* (98:2), pp. 310-357.

Consiglio, C., Borgogni, L., Alessandri, G., and Schaufeli, W. B. 2013. "Does Self-Efficacy Matter for Burnout and Sickness Absenteeism? The Mediating Role of Demands and Resources at the Individual and Team Levels," *Work & Stress* (27:1), pp. 22-42.

Crawford, E. R., LePine, J. A., and Rich, B. L. 2010. "Linking Job Demands and Resources to Employee Engagement and Burnout: A Theoretical Extension and Meta-Analytic Test," *Journal of Applied Psychology* (95:5), pp. 834-848.

Demerouti, E., Bakker, A. G., Nachreiner, F., and Schaufeli, W. B. 2001. "The Job Demands-Resources Model of Burnout," *Journal of Applied Psychology* (86:3), pp. 499-512.

Garrosa, E. R., Rainho, C., Moreno-Jimenez, B., and Monteiro, M. J. 2010. "The Relationship Between Job Stressors, Hardy Personality, Coping Resources and Burnout in a Sample of Nurses: A Correlational Study at Two Time Points," *International Journal of Nursing Studies* (47:2), pp. 205-215.

Gefen, D., Rigdon, E. E., and Straub, D. 2011. "An Update and Extension to SEM Guidelines for Administrative and Social Science Research," *MIS Quarterly* (35:2), pp. iii-xiv.

Gowan, A., and Reichgelt, H. 2010. "Emergence of the Information Technology Discipline," *IEEE Computer* (43:7), pp.79-81.

Greenhaus, J. H., Parasuraman, S., and Collins, K. M. 2001. "Career Involvement and Family Involvement as Moderators of Relationships Between Work–Family Conflict and Withdrawal from a Profession," *Journal of Occupational Health Psychology* (6:2), pp. 91-100.

Guglielmi, D., Simbula, S., Schaufeli, W. B., and Depolo, M. 2012. "Self-Efficacy and Workaholism as Initiators of the Job Demands–Resources Model," *Career Development International* (17:4), pp. 375-389.

Hair, J. F., Ringle, C. M., and Sarstedt, M. 2011. "PLS-SEM: Indeed a Silver Bullet," *Journal of Marketing Theory and Practice (Special Issue on the Use of Partial Least Squares)* (19:2), pp. 139-151.

Helm, S., Eggert, A., and Garnefeld, I. 2010. "Modeling the Impact of Corporate Reputation on Customer Satisfaction and Loyalty Using Partial Least Squares," in *Handbook of Partial Least Squares*, V. E. Vinzi, W. W. Chin, J. Henseler, and H. Wang (eds.), Berlin: Springer, pp. 515-534.

Hobfoll, S. E., Johnson, R. J., Ennis, N., and Jackson, A. P. 2003. "Resource Loss, Resource Gain, and Emotional Outcomes Among Inner City Women," *Journal of Personality and Social Psychology* (84:3), pp. 632-643.

Howard, L. W., and Cordes, C. L. 2010. "Flight from Unfairness: Effects of Perceived Injustice on Emotional Exhaustion and Employee Withdrawal," *Journal of Business Psychology* (25), pp. 409-428.

Hu, Q., Schaufeli, W. B., and Taris, T. W. 2013. "Does Equity Mediate the Effects of Job Demands and Job Resources on Work Outcomes? An Extension of the Job Demands-Resources Model," *Career Development International* (18:4), pp. 357-376.

Ito, J. K., and Brotheridge, C. M. 2001. "An Examination of the Roles of Career Uncertainty, Flexibility, and Control in Predicting Emotional Exhaustion," *Journal of Vocational Behavior* (59:3), pp. 406-424.

Joshi, K. D., and Kuhn, K. 2001. "Gender Differences in IS Career Choice: Examine the Role of Attitudes and Social Norms in Selecting IS Profession," in *Proceedings of the 2001 ACM SIGCPR Conference on Computer Personnel Research*, New York: ACM Press, pp. 121-124.

Jourdain, G., and Chênevert, D. 2010. "Job Demands–Resources, Burnout and Intention to Leave the Nursing Profession: A Questionnaire Survey," *International Journal of Nursing Studies* (47:6), pp. 709-722.

Kouvonen, A., Toppinen-Tanner, S., Kivistö, M., Huuhtanen, P., and Kalimo, R. 2005. "Job Characteristics and Burnout among Aging Professionals in Information and Communications Technology," *Psychological Reports* (97:2), pp. 505-514.

Ladstatter, F., Garrosa, E., Badea, C., and Moreno, B. 2010. "Application of Artificial Neural Networks to a Study of Nursing Burnout," *Ergonomics* (53:9), pp. 1085-1096.

Landsbergis, P. A. 1988. "Occupational Stress Among Health Care Workers: A Test of the Job Demands-Control Model," *Journal of Organizational Behavior* (9:3), pp. 217-239.

Lee, K., Carswell, J. J., and Allen, N. J. 2000. "A Meta-Analytic Review of Occupational Commitment: Relations with Person and Work-Related Variables," *Journal of Applied Psychology* (85:5), pp. 799-811.

Lee, R., and Ashforth, B. 1996. "A Meta-Analytic Examination of the Correlates of the Three Dimensions of Job Burnout," *Journal of Applied Psychology* (81:2), pp. 123-133.

Maslach, C. 1998. "A Multidimensional Theory of Burnout," in *Theories of Organizational Stress*, C. L. Cooper (ed.), New York: Oxford University Press.

Maslach, C., and Jackson, S. E. 1981. "The Measurement of Experienced Burnout," *Journal of Occupational Behaviour* (2:2), pp. 99-113.

Maslach, C., and Leiter, M. P. 1997. *The Truth about Burnout: How Organizations Cause Personal Stress and What to Do About It*, San Francisco: Jossey-Bass.

Maslach, C., and Schaufeli, W. B. 1993. "Historical and Conceptual Development of Burnout," in *Professional Burnout: Recent Developments in Theory and Research,* W. B. Schaufeli, C. Maslach, and T. Marek (eds.), Washington, DC: Taylor and Francis, pp. 1-18.

Maslach, C., Schaufeli, W. B., and Leiter, M. P. 2001. "Job Burnout," *Annual Review of Psychology* (52:1), pp. 397-422.

Mathieson, K., Peacock, E., and Chin, W. W. 2001. "Extending the Technology Acceptance Model: The Influence of Perceived User Resources," *ACM SigMIS Database* (32:3), pp. 86-112.

Mauno, S., Kinnunen, U., and Ruokolainen, M. 2007. "Job Demands and Resources As Antecedents of Work Engagement: A Longitudinal Study," *Journal of Vocational Behavior* (70:1), pp. 149-171.

McCarty, W. P., and Skogan, W. G. 2013. "Job-Related Burnout Among Civilian and Sworn Police Personnel," *Police Quarterly* (16:1), pp. 66-84.

McDonnell, A. 2011. "Still Fighting the 'Wwar for Talent'? Bridging the Science Versus Practice Gap," *Journal of Business and Psychology* (26:2), pp. 169-173.

Moore, J. E. 2000. "One Road to Turnover: An Examination of Work Exhaustion in Technology Professionals," *MIS Quarterly* (24:1), pp. 141-168.

Netemeyer, R. G., Brashear-Alejandro, T., and Boles, J. S. 2004. "A Cross-National Model of Job-focused Outcomes of Work Role and Family Role Variables: A Retail Sales Context," *Journal of the Academy of Marketing Science* (32:1), pp. 49-60.

Panko, R. R. 2008. "IT Employment Prospects: Beyond the Dotcom Bubble," *European Journal of Information Systems* (17:3), pp. 182-197.

Pawlowski, S. D., Kaganer, E. A, and Cater, J. J. 2007. "Focusing The Research Agenda on Burnout in IT: Social Representations of Burnout in the Profession," *European Journal of Information Systems* (16:5), pp. 612-627.

Premack, S. L., and Wanous, J. P. 1985. "A Meta-Analysis of Realistic Job Preview Experiments," *Journal of Applied Psychology* (70:4), pp. 706-719.

Riemenschneider, C. K, Armstrong, D. J., Allen, M. W., and Reid, M. F. 2006. "Barriers Facing Women in the IT Work Force," *The Database for Advances in Information Systems* (37:4), pp. 58-79.

Rigas, P. P. 2009. "A Model of Turnover Intention among Technically-Oriented Information Systems Professionals," *Information Resources Management Journal* (22:1), pp. 1-23.

Ringle, C. M., Wende, S., and Will, A. 2005. *Smartpls 2.0 (Beta)* (http://www.Smartpls.De.), University of Hamburg, Hamburg, Germany.

Roberts, B. W., and Delvecchio, W. F. 2000. "The Rank-Order Consistency of Personality Traits from Childhood to Old Age: A Quantitative Review of Longitudinal Studies," *Psychological Bulletin* (126:1), pp. 3-25.

Rosenberg, D. 2014. "General Motors Opens Fourth Information Technology Center Today," *GM Authority* (available online at http://gmauthority.com/blog/2014/08/general-motors-opens-fourth-information-technology-center-today/; retrieved on August 29, 2014).

Rutner, P. S., Hardgrave, B. C., and McKnight, H. 2008. "Emotional Dissonance and the Information Technology Professional," *MIS Quarterly* (32:3), pp. 635-652.

Schaufeli, W. B., and Bakker, A. 2004. "Job Demands, Job Resources, and Their Relationship with Burnout and Engagement: A Multi Sample Study," *Journal of Organizational Behavior* (25:3), pp. 293-315.

Schaufeli, W. B., Leiter, M. P., Maslach, C., and Jackson, S. E. 1996. "The Maslach Burnout Inventory—General Survey," in *MBI Manual* (3rd ed.), C. Maslach, S. E. Jackson, and M. P. Leiter (eds.), Palo Alto, CA: Consulting Psychologists Press, pp. 19-26.

Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., and Bakker, A. B. 2002. "The Measurement of Engagement and Burnout: A Two Sample Confirmatory Factor Analytic Approach," *Journal of Happiness Studies* (3:1), pp. 71-92.

Shih, S-P., Jiang, J. J., Klein, G., and Wang, E. 2013. "Job Burnout of the Information Technology Worker: Work Exhaustion, Depersonalization, and Personal Accomplishment," *Information & Management* (50:7), pp. 582-589.

Shropshire, J., and Kadlec, C. 2012. "I'm Leaving the IT Field: The Impact of Stress, Job Insecurity, and Burnout on IT Professionals," *International Journal of Information and Communication Technology Research* (2:1), pp. 6-16.

Snape, E., and Redman, T. 2003. "An Evaluation of a Three-Component Model of Occupational Commitment: Dimensionality and Consequences among United Kingdom Human Resource Management Specialists," *Journal of Applied Psychology* (88:1), pp. 152-159.

Straub, D., Boudreau, M.-C., Gefen, D. 2004. "Validation Guidelines for IS Positivist Research," *Communications of the Association for Information Systems* (13), pp. 380-427.

Thibodeau, P. 2012. "IT Jobs Will Grow 22% Through 2020, Says U.S.," March 29 (available online at http://www.computerworld.com/s/article/9225673/IT_jobs_will_grow_22_through_2020_says_U.S.; on August 29, 2014).

Tourigny, L. B., Vishwanath V., Han, J., and Wang, X. 2013. "Emotional Exhaustion and Job Performance: The Mediating Role of Organizational Commitment," *The International Journal of Human Resource Management* (24:3), pp. 514-532.

U.S. Department of Labor, Bureau of Labor Statistics Occupational, "Outlook Handbook" (http://www.bls.gov/ooh/home.htm).

Watson, D. 2000. *Mood and Temperament,* New York: Guilford Press.

Wolfram, H. J., and Gratton, L. 2014. "Spillover Between Work and Home, Role Importance and Life Satisfaction," *British Journal of Management* (25:1), pp. 77-90.

Wright, T. A., and Cropanzano, R. 1998. "Emotional Exhaustion as a Predictor of Job Performance and Voluntary Turnover," *Journal of Applied Psychology* (83:3), pp. 486-493.

About the Authors

Deborah J. Armstrong is an associate professor of Management Information Systems in the College of Business at Florida State University. Deborah's research interests cover a variety of issues at the intersection of IS personnel and cognition involving the human aspects of technology, change, and learning. Her research has appeared in *MIS Quarterly, Journal of Management Information Systems, European Journal of Information Systems*, and *Communications of the ACM,* among others.

Nita G. Brooks is an associate professor in the Department of Computer Information Systems in the Jones College of Business at Middle Tennessee State University. Nita's current research interests include IS workforce, security and privacy, project commitment, and IS education. Her research has appeared in *Communications of the ACM*, *European Journal of Information Systems*, *Journal of Computer Information Systems*, and *IS Education Journal*, among others.

Cynthia K. Riemenschneider is associate dean for research and faculty development and professor of Information Systems in the Hankamer School of Business at Baylor University. Her publications have appeared in *Information Systems Research*, *Journal of Management Information Systems*, *IEEE Transactions on Software Engineering*, *The DATA BASE for Advances in Information Systems, European Journal of Information Systems*, and others. She currently conducts research on IT work force issues, women and minorities in IT, and ethical issues surrounding IT use.

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RESEARCH NOTE

EXHAUSTION FROM INFORMATION SYSTEM CAREER EXPERIENCE: IMPLICATIONS FOR TURN-AWAY INTENTION

Deborah J. Armstrong
Entrepreneurship, Strategy & Information Systems Department, College of Business, Florida State University,
821 Academic Way, Tallahassee, FL 32306-1110 U.S.A. {darmstrong@business.fsu.edu}

Nita G. Brooks
Computer Information Systems, Jones College of Business, Middle Tennessee State University,
MTSU Box 45, Murfreesboro, TN 37132 U.S.A. {nita.brooks@mtsu.edu}

Cynthia K. Riemenschneider
Management Information Systems Department, Hankamer School of Business, Baylor University,
1 Bear Place #98005, Waco, TX 76798-8005 U.S.A. {c_riemenschneider@baylor.edu}

Appendix A

Construct, Acronyms, Definitions, and Sources

Term	Acronym	Definition	Source
Affective Commitment to the IS Profession	ACISP*	An individual's positive emotional attachment to the profession.	Lee et al. 2000; Meyer and Herscovitch 2001
Autonomy	AUT	Provides individuals with the freedom to decide how to accomplish tasks.	Ahuja and Thatcher 2005
Burnout	BO	A condition in which the stress experienced exceeds an individual's ability to cope with that stress; "an extreme state of psychological strain and depletion of energy resources arising from prolonged exposure to stressors that exceed the person's resources to cope."	Cooper et al. 2001, p. 84
Career Family Conflict	CFC*	The incompatible pressures that career demands and family life can place on individuals across their experience in the IS field	Duxbury and Higgins 1991
Continuance Commitment to the IS Profession	CCISP	Derived from the perceived cost of leaving the profession.	Meyer et al. 2002
Control of Career	CTRL*	"Reflects the extent to which individuals believe they can predict and influence the direction of theircareers"; involves the control over one's career path.	Ito and Brotheridge 2001, p. 410; Hartline and Ferrell 1996
Exhaustion	EXH	The key component of burnout; feeling mentally fatigued or emotionally overextended.	Maslach and Schaufeli 1993; Wright and Cropanzano 1998
Exhaustion from IS Career Experience	EISCE*	The feeling of being overextended from one's IS experience or IS career.	New

Term	Acronym	Definition	Source
Fairness	FAIR*	The perception of being treated impartially or with a lack of favoritism.	Moorman 1991
Information Systems Career Experience	ISCE	The sum of work-related experiences over an IS professional's career.	New
Information Systems Career Experience Demands	ISCE Demands	The characteristics or features of an individual's career experience in the IS profession that place demands on the individual and require mental and/or emotional effort to meet.	Mauno et al. 2007
Information Systems Career Experience Resources	ISCE Resources	Psychological, mental, or emotional features of an individual's career experience in the IS profession that aid in achieving goals, reducing demands, or stimulating personal development.	Bakker and Demerouti 2008; Demerouti et al. 2001; Mauno et al. 2007
Normative Commitment to the IS Profession	NCISP	The individual commits to the profession from negative feelings (i.e., obligation).	Meyer et al. 2002
Perceived Workload	PW*	The perceived amount of work to be accomplished in the allotted time.	Kirmeyer and Dougherty 1988
Role Ambiguity	RA	Uncertainty regarding role expectations.	Daft and Noe 2001
Role Conflict	RC	Incompatible demands from multiple roles.	Daft and Noe 2001
Turn-Away Intention	TAI*	The intention to change professions / careers as opposed to changing a job or organization.	Joseph et al. 2011
Work-Family Conflict	WFC	The incompatible pressures that work and family demands can place on an individual such that work demands spillover into family life.	Duxbury and Higgins 1991

*Indicates constructs tested and found in Figure 1.

References

Ahuja, M. K., and Thatcher, J. B. 2005. "Moving Beyond Intentions and Toward the Theory of Trying: Effects of Work Environment and Gender on Post-Adoption Information Technology Use," *MIS Quarterly* (29:3), pp. 427-460.

Bakker, A. B. and Demerouti, E. 2008. "Towards a Model of Work Engagement," *Career Development International* (13:3), pp. 209-223.

Cooper, C. L., Dewe, P. J., and O'Driscoll, M. P. 2001. *Organizational Stress: A Review and Critique of Theory, Research and Applications,* Thousand Oaks, CA: Sage Publications.

Daft, R. L., and Noe, R. A. 2001. *Organizational Behavior,* San Diego, CA: Harcourt, Inc.

Demerouti, E., Bakker, A. G., Nachreiner, F., and Schaufeli, W. B. 2001. "The Job Demands-Resources Model of Burnout," *Journal of Applied Psychology* (86:3), pp. 499-512.

Duxbury, L., and Higgins, C. 1991. "Gender Differences in Work-Family Conflict," *Journal of Applied Psychology* (76:1), pp. 60-74.

Hartline, M. and Ferrel, O. C. 1996. "The Management of Customer-Contact Service Employees: An Empirical Investigation," *Journal of Marketing* (60:4), pp. 52-70.

Ito, J. K., and Brotheridge, C. M. 2001. "An Examination of The Roles of Career Uncertainty, Flexibility, and Control in Predicting Emotional Exhaustion," *Journal of Vocational Behavior* (59:3), pp. 406-424.

Joseph, D., Tan, M. L., and Ang, S. 2011. "Is Updating Play or Work? The Mediating Role of Updating Orientation in Linking Threat of Professional Obsolescence to Turnover/Turnaway Intentions," *International Journal of Social and Organizational Dynamics in IT* (1:4), pp. 37-47.

Kirmeyer, S. L., and Dougherty, T. W. 1988. "Work Load, Tension, and Coping: Moderating Effects of Supervisor Support," *Personnel Psychology* (41:1), pp. 125-139.

Lee, K., Carswell, J. J., and Allen, N. J. 2000. "A Meta-Analytic Review of Occupational Commitment: Relations with Person and Work-Related Variables," *Journal of Applied Psychology* (85:5), pp. 799-811.

Maslach, C., and Schaufeli, W. B. 1993. "Historical and Conceptual Development of Burnout," in *Professional Burnout: Recent Developments in Theory and Research,* W. B. Schaufeli, C. Maslach, and T. Marek (eds.), Washington, DC: Taylor and Francis, pp. 1-18.

Mauno, S., Kinnunen, U., and Ruokolainen, M. 2007. "Job Demands and Resources as Antecedents of Work Engagement: A Longitudinal Study," *Journal of Vocational Behavior* (70:1), pp. 149-171.

Meyer, J. P., and Herscovitch, L. 2001. "Commitment in the Workplace: Toward a General Model," *Human Resource Management Review* (11:3), pp. 299-326.

Meyer, J. P., Stanley, D. J., Herscovitch, L., and Topolnytsky, L. 2002. "Affective, Continuance, and Normative Commitment to the Organization: A Meta-Analysis of Antecedents, Correlates, and Consequences," *Journal of Vocational Behavior* (61:1), pp. 20-52.

Moorman, R. H. 1991. "The Relationship Between Organizational Justice and Organizational Citizenship Behavior: Do Fairness Perceptions Influence Employee Citizenship?," *Journal of Applied Psychology* (76:6), pp. 845-855.
Wright, T. A., and Cropanzano, R. 1998. "Emotional Exhaustion as a Predictor of Job Performance and Voluntary Turnover," *Journal of Applied Psychology* (83:3), pp. 486-493.

Appendix B

Construct Mapping from the Job Context to the IS Career Experience (ISCE) Context

Job Context Construct	ISCE Context Construct
Organizational Commitment	Affective Commitment to the IS Profession
Work–Family Conflict	Career–Family Conflict
Job Autonomy	Control of Career
Work Exhaustion	Exhaustion from IS Career Experience
Fairness of Rewards	Fairness
Perceived Work Overload	Perceived Workload
Turnover Intention	Turn-Away Intention

Appendix C

Sample of JD–R Studies Exploring Relationships Between Demands, Resources, and Burnout

Relationship Findings	Source
Demands and resources influence burnout directly	Brough et al. 2013 (Chinese sample); Crawford et al. 2010; Hakanen et al. 2008; Maslach and Leiter 2008; Schaufeli et al. 2009b
Resources moderate demands–burnout relationship	Bakker et al. 2010; Brough et al. 2013 (Australian sample); van Emmerik et al. 2009
Resources moderate demands–burnout relationship and direct effect for resources	de Rijk et al. 1998; Kahn and Byosiere 1992; Koeske et al. 1993
No moderation	Xanthopoulou et al. 2007
No moderation but direct effect for resources on burnout	Bakker et al. 2004
Job resources and job demands partially mediate the relationship between person resources and burnout	Consiglio et al. 2013
Job demands mediate the relationship between person demands and exhaustion and/or burnout	Guglielmi et al. 2012; Schaufeli et al. 2009a; Taris et al. 2012
Job resources mediate the relationship between person resources and burnout	Guglielmi et al. 2012
Person resources mediate the relationship between job resources and exhaustion	Xanthopoulou et al. 2007

References

Bakker, A. B., Demerouti, E., and Verbeke, W. 2004. "Using the Job Demands Resources Model to Predict Burnout and Performance," *Human Resource Management* (43:1), pp. 83-104.

Bakker, A. B., Van Veldhoven, M. J. P. M., and Xanthopoulou, D. 2010. "Beyond the Demand–Control Model: Thriving on High Job Demands and Resources," *Journal of Personnel Psychology* (9:1), pp. 3-16.

Brough, P., Timms, C., Siu, Oi-ling, K. T., O'Driscoll, M. P., Sit, C. H. P., Lo, D. and Lu, C-Q. 2013. "Validation of the Job Demands–Resources Model in Cross-National Samples: Cross-Sectional and Longitudinal Predictions of Psychological Strain and Work Engagement," *Human Relations* (66:10), pp. 1311-1335.

Consiglio, C., Borgogni, L., Alessandri, G., and Schaufeli, W. B. 2013. "Does Self-Efficacy Matter for Burnout and Sickness Absenteeism? The Mediating Role of Demands and Resources at the Individual and Team Levels," *Work & Stress* (27:1), pp. 22-42.

Crawford, E. R., LePine, J. A., and Rich, B. L. 2010. "Linking Job Demands and Resources to Employee Engagement and Burnout: A Theoretical Extension and Meta-Analytic Test," *Journal of Applied Psychology* (95:5), pp. 834-848.

de Rijk, A. E., LeBlanc, P. M., Schaufeli, W. B., and de Jonge, J. 1998. "Active Coping and Need for Control as Moderators of the Job Demand–Control Model: Effects on Burnout," *Journal of Occupational and Organizational Psychology* (71:1), pp. 1-17.

Guglielmi, D., Simbula, S., Schaufeli, W. B., and Depolo, M. 2012. "Self-Efficacy and Workaholism as Initiators of the Job Demands–Resources Model," *Career Development International* (17:4), pp. 375-389.

Hakanen, J. J., Schaufeli, W. B., and Ahola, K. 2008. "The Job Demands–Resources Model: A Three-Year Cross-Lagged Study of Burnout, Depression, Commitment, and Work Engagement," *Work and Stress* (22:3), pp. 224-241.

Kahn, R. L., and Byosiere, P. 1992. "Stress in Organizations," in *Handbook of Industrial and Organizational Psychology* (Vol. 3), M. D. Dunnette and L. M. Hough (eds.), Palo Alto, CA: Consulting Psychologists Press, pp. 571-650.

Koeske, G. F., Kirk, S. A., and Koeske, R. D. 1993. "Coping with Job Stress: Which Strategies Work Best?," *Journal of Occupational and Organizational Psychology* (66:4), pp. 319-335.

Maslach, C., and Leiter, M. P. 2008. "Early Predictors of Job Burnout and Engagement," *Journal of Applied Psychology* (93:3), pp. 498-512.

Schaufeli, W. B., Bakker, A. B., van der Heijden, F. M. M. A., Prins, J. T. 2009a. "Workaholism Among Medical Residents: It Is the Combination of Working Excessively and Compulsively That Counts," *International Journal of Stress Management* (16:4), pp. 249-272.

Schaufeli, W. B., Bakker, A. B., and Van Rhenen, W. 2009b. "How Changes in Job Demands and Resources Predict Burnout, Work Engagement, and Sickness Absenteeism," *Journal of Organizational Behavior* (30:7), pp. 893-917.

Taris, T. W., van Beek, I., Schaufeli, W. B. 2012. "Demographic and Occupational Correlates of Workaholism," *Psychological Reports* (110:2), pp. 547-554

van Emmerik, I. J. H., Bakker, A. B., and Euwema, M. C. 2009. "Explaining Employees' Evaluations of Organizational Change with the Job–Demands Resources Model," *Career Development International* (14:6), pp. 594-613.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., and Schaufeli, W. B. 2007. "The Role of Personal Resources in the Job Demands–Resources Model," *International Journal of Stress Management* (14:2), pp. 121-141.

Appendix D

Survey Constructs and Response Scales

Construct	Based On	Response Scale	Items
Affective Commitment to the IS Profession	Allen and Meyer 1990	With respect to your own feelings about the IT profession, please indicate the level of your agreement or disagreement with each statement.	
		7	I would be very happy to spend the rest of my career in this profession.
		7	I enjoy discussing my profession with people outside IT.
		7	I think I could easily become as attached to another profession as I am to this one. (R)
		7	I do not feel emotionally attached to this profession. (R)
		7	I do not feel a strong sense of belonging to my profession. (R)
Career– Family Conflict	Netemeyer et al. 1996	Throughout my IT career…	
		7	The demands of my work interfered with my home and family life.
		7	The amount of time my job took up made it difficult to fulfill family responsibilities.
		7	Things I wanted to do at home did not get done because of the demands my job put on me.
		7	My job produced strain that made it difficult to fulfill family duties.
Control of Career (Control)	Bordia et al. 2004	Think about your place in the IT profession…	
		7	I feel I am in control of my future in the IS profession.
		7	*I feel I can influence the nature of change in the IS profession.
		7	I feel in control of the direction in which my career is headed.
Control of Career (Power)	Ashford et al. 1989	Think about your place in the IT profession…	
		7	I have enough power to control events that might affect my IT career.
		7	In the IT profession, I can prevent negative things from affecting my work situation.
		7	I understand the IT profession well enough to be able to control things that affect me.
Exhaustion from IS Career Experience	Maslach and Jackson 1981	Think about your entire IT career…	
		7	I have felt emotionally drained from my work.
		7	I have felt used up at the end of the workday.
		7	I have felt fatigued when getting up in the morning and having to face another day on the job.
		7	I have felt burned out from my work.
Fairness	Moorman 1991; Niehoff and Moorman 1993	Think about your entire IT career…	
		7	My work schedule has been fair.
		7	I think that my level of pay has been fair.
		7	I consider my workload to have been fair.
		7	I feel that my job responsibilities have been fair.
		7	Overall, the rewards I received have been fair.

Construct	Based On	Response Scale	Items
Negative Affectivity	Moore 2000; Watson et al. 1988	Below are a number of words that describe different feelings and emotions. Please indicate the extent to which you have felt this way during the past few months.	
		5	Scared
		5	Afraid
		5	Upset
		5	Distressed
		5	Jittery
		5	Nervous
		5	*Ashamed
		5	*Guilty
		5	Irritable
		5	*Hostile
Perceived Workload	Kirmeyer and Dougherty 1988	Think about your entire IT career…	
		7	I have felt busy or rushed at work.
		7	I have felt pressured at work.
		7	I have felt that the amount of work I've done has interfered with how well it was done.
		7	I have felt that the number of requests, complaints, or problems I dealt with was more than expected.
Turn-Away Intention	Meyer et al. 1993	Think about your place in the IT profession…	
		7	I intend to continue working in the IT profession until I retire. (R)
		7	I expect to work in a career other than IT sometime in the future.
		7	I frequently think about getting out of the IT profession.
		7	It is likely that I will soon explore career opportunities outside of the IT profession.

5 indicates use of a 5-point Likert scale with "very slightly or not at all" and "extremely" as anchors.
7 indicates use of a seven-point Likert scale with "strongly disagree" and "strongly agree" an anchors.
*Indicates eliminated item.

References

Allen, N. J., and Meyer J. P. 1990. "The Measurement and Antecedents of Affective, Continuance, and Normative Commitment to the Organization," *Journal of Occupational and Organizational Psychology* (63:1), , pp. 1-18.

Ashford, S. J., Lee, C., and Bobko, P. 1989. "Content, Causes and Consequences of Job Insecurity: A Theory-Based Measure and Substantive Test," *Academy of Management Journal* (22:4), pp. 803-829.

Bordia, P., Hunt, E., Paulsen, N., Tourish, D., and Difonzo, N. 2004. "Uncertainty During Organizational Change: Is It All About Control?," *European Journal of Work and Organizational Psychology* (13:3), pp. 345-365.

Kirmeyer, S. L., and Dougherty, T. W. 1988. "Work Load, Tension, and Coping: Moderating Effects of Supervisor Support," *Personnel Psychology* (41:1), pp. 125-139.

Maslach, C., and Jackson, S. E. 1981. "The Measurement of Experienced Burnout," *Journal of Occupational Behaviour* (2:2), pp. 99-113.

Meyer, J. P., Allen, N. J., and Smith, C. A. 1993. "Commitment to Organizations and Occupations: Extension and Test of a Three-Component Conceptualization," *Journal of Applied Psychology* (78:4), pp. 538-551.

Moore, J. E. 2000. "One Road to Turnover: An Examination of Work Exhaustion in Technology Professionals," *MIS Quarterly* (24:1), pp. 141-168.

Moorman, R. H. 1991. "The Relationship Between Organizational Justice and Organizational Citizenship Behavior: Do Fairness Perceptions Influence Employee Citizenship?," *Journal of Applied Psychology* (76:6), pp. 845-855.

Netemeyer, R. G., Boles, J. S., and McMurrian, R. 1996. "Development and Validation of Work-Family Conflict and Family-Work Conflict Scales," *Journal of Applied Psychology* (81:4), pp. 400- 410.

Niehoff, B. P., and Moorman, R. H. 1993. "Justice as a Mediator of the Relationship Between Methods of Monitoring and Organizational Citizenship Behavior," *Academy of Management Journal* (36:3), pp. 527-556.

Watson, D., Clark, L. A., and Tellegen, A. 1988. "Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales," *Journal of Personality and Social Psychology* (54: 6), pp. 1063-1070.

Appendix E

Model Validation

Before examining the path model, general information (means, standard deviations, and correlations) about the model constructs was evaluated in SPSS (see Table E1). In order to ensure there were no issues with multicollinearity, the variance inflation factor (VIF) values for all of the constructs were calculated and found to be well below the acceptable threshold of 10.0 (Neter et al. 1990) (between 1.14 and 1.69). For the Durbin Watson statistic ($d = 2.09$) with six regressors, a sample size of 293 and a p value of 0.01 $d_L = 1.61$ and $d_U = 1.74$. Since $d > d_U$ we conclude that the errors are not positively autocorrelated, and since (4-d) > d_U we conclude that the errors are not negatively autocorrelated. We also analyzed the data for outliers and none were found. SmartPLS was used to examine the proposed path model. We began with a review of the individual items and factor structure in a confirmatory factor analysis (see Table E2). Problems with high cross loadings indicated that a few of the items should be removed (removed items are noted in Appendix D with an asterisk). These items were deleted prior to performing the remaining measurement assessments.

Reliability results are provided in Table E3. Cronbach's α for each construct was well above the recommended value of .70 (Hair et al. 2006) and ranged from 0.865 (ACISP) to 0.943 (CFC). Composite reliability ranged from 0.903 (ACISP) to 0.959 (CFC). Each construct's average variance extracted (AVE) exceeded 0.50 (Chin 1998; Fornell and Larcker 1981), and ranged from 0.623 (negative affectivity) to 0.853 (CFC), satisfying the requirement for convergent validity.

To evaluate the discriminant validity of the constructs, the approach recommended by Fornell and Larcker (1981) was utilized. Table E4 provides the data and indicates that the construct's AVE is greater than the squared correlation between each pair of constructs in the model.

"Common methods bias is the magnitude of the discrepancies between the observed and the true relationships between constructs that results from common methods variance" (Doty and Glick 1998, p. 36). To address potential common methods bias in the survey design, we included reverse-scored items to reduce compliance problems (Lindell and Whitney 2001).

Table E1. Descriptive Statistics (n = 293)

	ACISP	CFC	CTRL	EISCE	FAIR	PW	TAI	AGE	TENURE	GENDER	NA
ACISP	1										
CFC	-0.196**	1									
CTRL	0.306**	-0.106	1								
EISCE	-0.470**	0.464**	-0.327**	1							
FAIR	0.305**	-0.531**	0.297**	-0.475**	1						
PW	-0.271**	0.491**	-0.165**	0.737**	-0.419**	1					
TAI	-0.708**	0.196**	-0.213**	0.372**	-0.238**	-0.184**	1				
AGE	0.246**	0.087	-0.065	-0.042	-0.103	0.061	-0.304**	1			
TENURE	0.255**	0.133*	-0.087	-0.013	-0.127*	0.063	-0.311**	0.825**	1		
GENDER	-0.023	0.009	0.035	-0.069	-0.021	0.069	0.003	0.016	0.006	1	
NA	-0.232**	0.275**	-0.204**	0.473**	-0.206**	0.291**	0.242**	0.011	-0.042	0.105	1
Mean	4.10	3.78	3.79	4.39	5.24	4.58	3.34	39.74	14.35	1.42	1.83
SD	1.34	1.56	1.11	1.64	1.15	1.38	1.56	9.78	9.32	0.49	0.69

**Correlation Significant at .01 Level; *Correlation Significant at .05 Level.

Table Legend
ACISP = Affective Commitment to the IS Profession; CFC = Career–Family Conflict; CTRL = Control of Career; EISCE = Exhaustion from IS Career Experience; FAIR = Fairness; PW = Perceived Workload; TAI = Turn-Away Intention; NA = Negative Affectivity

Table E2. Confirmatory Factor Analysis

	ACISP	CFC	CTRL	EISCE	FAIR	PW	TAI
ACISP1	0.8332						
ACISP2	0.7278						
ACISP3_R	0.7834						
ACISP4_R	0.8512						
ACISP5_R	0.8293						
CFC1		0.9215					
CFC2		0.9435					
CFC3		0.8976					
CFC4		0.9327					
CTRL1			0.8293				
CTRL3			0.8425				
PWR1			0.7912				
PWR2			0.8439				
PWR3			0.7898				
EISCE1				0.9109			
EISCE2				0.9135			
EISCE3				0.9219			
EISCE4				0.8924			
FAIR1					0.8001		
FAIR2					0.7379		
FAIR3					0.8759		
FAIR4					0.8805		
FAIR5					0.8078		
PW1						0.8527	
PW2						0.8802	
PW3						0.8522	
PW4						0.8049	
TAI1_R							0.8594
TAI2							0.8318
TAI3							0.8619
TAI4							0.8965

Notes: Loadings less than 0.40 were omitted from the table for clarity; _R indicates a reverse coded item.

Table E3. Convergent Validity Summary and Construct Reliabilities

Construct	Average Variance Extracted	Cronbach's Alpha	Composite Reliability
ACISP	0.6500	0.8653	0.9025
CFC	0.8534	0.9428	0.9588
CTRL	0.6707	0.8783	0.9105
EISCE	0.8276	0.9306	0.9506
FAIR	0.6760	0.8809	0.9122
PW	0.7136	0.8658	0.9087
TAI	0.7442	0.8858	0.9208

Table Legend
ACISP = Affective Commitment to the IS Profession; CFC = Career–Family Conflict; CTRL = Control of Career; EISCE = Exhaustion from IS Career Experience; FAIR = Fairness; PW = Perceived Workload; TAI = Turn-Away Intention; NA = Negative Affectivity

Table E4. Correlations Among Latent Constructs

	ACISP	CFC	CTRL	EISCE	FAIR	PW	TAI
ACISP	**0.8062**	0	0	0	0	0	0
CFC	-0.1984	**0.9238**	0	0	0	0	0
CTRL	0.3079	-0.1260	**0.8190**	0	0	0	0
EISCE	-0.4748	0.4666	-0.3393	**0.9098**	0	0	0
FAIR	0.3136	-0.5430	0.3205	-0.4918	**0.8222**	0	0
PW	-0.2708	0.4914	-0.1784	0.7397	-0.4424	**0.8447**	0
TAI	-0.7277	0.1966	-0.2200	0.3774	-0.2445	0.1903	**0.8627**

Note: The diagonals are the square root of the average variance extracted (AVE) for each factor.

Table Legend
ACISP = Affective Commitment to the IS Profession; CFC = Career–Family Conflict; CTRL = Control of Career; EISCE = Exhaustion from IS Career Experience; FAIR = Fairness; PW = Perceived Workload; TAI = Turn-Away Intention; NA = Negative Affectivity

Table E5. Common Method Variance Test

Construct	Indicator	Substantive Construct Correlation	Substantive Construct Variance Explained	Common Method Factor Correlation	Common Method Variance Explained
Affective Commitment to the IS Profession	ACISP1	0.83	0.69	-0.82	0.67
	ACISP2	0.73	0.53	-0.60	0.36
	ACISP3_R	0.78	0.61	-0.66	0.44
	ACISP4_R	0.85	0.72	-0.69	0.47
	ACISP5_R	0.83	0.69	-0.68	0.46
Career–Family Conflict	CFC1	0.92	0.85	0.40	0.16
	CFC2	0.94	0.89	0.40	0.16
	CFC3	0.90	0.81	0.40	0.16
	CFC4	0.93	0.87	0.46	0.21
Control of Career	CTRL1	0.84	0.71	-0.41	0.17
	CTRL3	0.83	0.69	-0.45	0.20
	Power1	0.79	0.63	-0.20	0.04
	Power2	0.84	0.71	-0.37	0.14
	Power3	0.79	0.62	-0.29	0.09
Exhaustion from IS Career Experience	EISCE1	0.91	0.83	0.60	0.37
	EISCE2	0.91	0.83	0.56	0.32
	EISCE3	0.92	0.85	0.65	0.42
	EISCE4	0.89	0.80	0.73	0.53
Fairness	Fair1	0.80	0.64	-0.37	0.14
	Fair2	0.74	0.54	-0.39	0.15
	Fair3	0.88	0.77	-0.45	0.20
	Fair4	0.88	0.78	-0.53	0.28
	Fair5	0.81	0.65	-0.51	0.26
Perceived Workload	PW1	0.85	0.73	0.33	0.11
	PW2	0.88	0.77	0.46	0.21
	PW3	0.85	0.73	0.42	0.17
	PW4	0.79	0.63	0.47	0.22
Turn-Away Intention	TAI1_R	0.86	0.74	0.53	0.28
	TAI2	0.83	0.69	0.43	0.18
	TAI3	0.86	0.74	0.64	0.41
	TAI4	0.90	0.80	0.53	0.28
AVERAGE			0.73		0.30

We assessed the extent of common methods variance (CMV) in the data with two tests. First, we performed Harmon's one factor test (Podsakoff and Organ 1986) by including all reflective items in a principal components factor analysis. The results revealed eight factors with no single factor accounting for a majority of variance (i.e., the largest factor variance was 30.2%), suggesting no substantial CMV among the scales. We then followed the procedure recommended by Podsakoff et al. (2003) which specifies that, in addition to theoretical constructs, a common methods construct (that includes all the indicators) be used in the empirical research model. We assessed the variance explained by the common methods construct relative to the variance explained by the substantive constructs. As shown in Table E5, the average variance explained by the substantive constructs is 0.73 while the average variance explained by the common methods construct is 0.30. Taken together, these analyses indicate that common methods bias did not significantly affect our results.

References

Chin, W. W. 1998. "The Partial Least Squares Approach for Structural Equation Modeling," in *Modern Methods for Business Research,* G. A. Marcoulides (ed.), Mahwah, NJ: Lawrence Erlbaum Associates, pp. 295-336.

Doty, D. H., and Glick, W. H. 1998. "Common Methods Bias: Does Common Methods Variance Really Bias Results?," *Organizational Research Methods* (1:4), pp. 374-406.

Fornell C., and Larcker, D. F. 1981. "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research* (18:1), pp. 39-50.

Hair J. F., Black W. C., Babin B. J., Anderson R. E., and Tatham R. L. 2006. *Multivariate Data Analysis* (6th ed.), Upper Saddle River, NJ: Prentice Hall.

Lindell, M. K., and Whitney, D. J. 2001. "Accounting for Common Method Variance in Cross-Sectional Research Designs," *Journal of Applied Psychology* (86:1), pp. 114-121.

Neter, J., Wasserman, W., and Kutner, M. H. 1990. *Applied Linear Statistical Models* (3rd ed.), Boston: Irwin.

Podsakoff, P. M., and Organ, D. W. 1986. "Self-Reports in Organizational Research: Problems and Prospects," *Journal of Management* (12:4), pp. 531-544.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., and Podsakoff, N. P. 2003. "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," *Journal of Applied Psychology* (88:5), pp. 879-903.

Appendix F

Mediation Test Procedure

According to Hoyle and Kenny (1999), to establish mediation in a structural equation context we need to show that (1) the independent variable (e.g., EISCE) significantly affects the outcome variable (e.g., TAI) in the absence of the mediator and (2) the direct effect of the independent variable (e.g., EISCE) on the outcome variable decreases upon the addition of the mediator (e.g., ACISP). This two-step approach to examining mediation can be used to judge whether mediation is occurring. In order to establish the mediating effect, the indirect effect must be significant; this can be determined using a Sobel Z-statistic (Helm et al. 2010).

We conducted a Sobel (1982) test of the indirect effect of EISCE on TAI via ACISP to evaluate whether the mediator carried the influence of the independent variable to the dependent variable. A Z-test of the indirect effect was conducted using a ratio of the indirect coefficient to its standard error. A significant Z value indicates that the indirect effect of the independent variable on the dependent variable via the mediator is significantly different from zero.

To assess the magnitude of the indirect effects (Helm et al. 2010), we calculated the variance accounted for (VAF). The formula for the VAF is (βiv-m * βm-dv) / (βiv-m * βm-dv + βiv-dv). The numerator of the VAF is calculated as the beta of the independent variable-mediator relationship multiplied by the beta of the mediator–dependent variable relationship. The denominator of the VAF is calculated as the beta of the independent variable–mediator relationship multiplied by the beta of the mediator–dependent variable relationship plus the beta of the independent–dependent variable relationship. If the VAF is greater than 0.5, then the indirect effect is more influential on the dependent variable that the direct effect (Helm et al. 2010).

References

Helm, S., Eggert, A., and Garnefeld, I. 2010. "Modeling the Impact of Corporate Reputation on Customer Satisfaction and Loyalty Using Partial Least Squares," in *Handbook of Partial Least Squares*, V. E. Vinzi, W. W. Chin, J. Henseler, and H. Wang (eds.), Berlin: Springer, pp. 515-534.

Hoyle, R. H., and Kenny, D. A. 1999. "Sample Size, Reliability, and Tests of Mediation," in *Statistical Strategies for Small Sample Research*, R. H., Hoyle (ed.), Thousand Oaks, CA: Sage Publications, pp. 195-222.

Sobel, M. E. 1982. "Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models," in *Sociological Methodology 1982,* S. Leinhart (ed.), San Francisco: Jossey-Bass, pp. 290-312.

Appendix G

Recommended Items for Future Studies

How many organizations have you worked for as an IT professional?

Perceived Workload (PW)

1. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling of being busy or rushed at work as an IT professional. (Seven-point Likert scale: strongly disagree/strongly agree)
   - 1a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you experience a persistent feeling of being busy or rushed at work?
   - 1b. Of those experiences, what was the frequency with which you felt busy or rushed at work? (Likert frequency scale: never, seldom, sometimes, often, very often)
2. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling of pressure at work as an IT professional. (Seven-point Likert scale: strongly disagree/strongly agree)
   - 2a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you often experience feeling pressure at work?
   - 2b. Of those experiences, what was the frequency with which you felt pressure at work as an IT professional? (Likert frequency scale: never, seldom, sometimes, often, very often)
3. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling that the amount of work I've done as an IT professional has interfered with how well the work was done. (Seven-point Likert scale: strongly disagree/strongly agree)
   - 3a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you feel that the amount of work to be done interfered with how well you were able to do the work?
   - 3b. Of those experiences, what was the frequency with which you felt the amount of IT-related work to be done interfered with how well you were able to do the work? (Likert frequency scale: never, seldom, sometimes, often, very often)
4. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling that the number of requests, complaints, or problems I dealt with as an IT professional was more than expected. (Seven-point Likert scale: strongly disagree/strongly agree)
   - 4a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you feel that the number of requests, complaints, or problems you dealt with as an IT professional was more than expected?
   - 4b. Of those experiences, what was the frequency with which you felt that the number of requests, complaints, or problems you dealt with as an IT professional was more than expected? (Likert frequency scale: never, seldom, sometimes, often, very often)

Exhaustion from IS Career Experience (EISCE)

1. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling of being emotionally drained from my work as an IT professional. (Seven-point Likert scale: strongly disagree/strongly agree)
   - 1a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you experience feeling emotionally drained from your work?

1b. Of those experiences, what was the frequency with which you felt emotionally drained from your work? (Likert frequency scale: never, seldom, sometimes, often, very often)

2. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling of being used up at the end of the workday as an IT professional. (Seven-point Likert scale: strongly disagree/strongly agree)
   2a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you experience feeling used up at the end of the workday?
   2b. Of those experiences, what was the frequency with which you felt used up at the end of the workday? (Likert frequency scale: never, seldom, sometimes, often, very often)
3. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling of fatigue when getting up in the morning and having to face another day on the job as an IT professional. (Seven-point Likert scale: strongly disagree/strongly agree)
   3a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you experience feeling fatigued when getting up in the morning and having to face another day on the job?
   3b. Of those experiences, what was the frequency with which you felt fatigued when getting up in the morning and having to face another day on the job? (Likert frequency scale: never, seldom, sometimes, often, very often)
4. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling of being burned out from my work as an IT professional. (Seven-point Likert scale: strongly disagree/strongly agree)
   4a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you experience feeling burned out from your work?
   4b. Of those experiences, what was the frequency with which you felt burned out from your work? (Likert frequency scale: never, seldom, sometimes, often, very often)

Fairness

1. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling that my work schedule has been fair. (Seven-point Likert scale: strongly disagree/strongly agree)
   1a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you experience feeling that your work schedule was fair?
   1b. Of those experiences, what was the frequency with which you felt your work schedule was fair? (Likert frequency scale: never, seldom, sometimes, often, very often)
2. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling that my level of pay has been fair. (Seven-point Likert scale: strongly disagree/strongly agree)
   2a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you experience feeling that your level of pay was fair?
   2b. Of those experiences, what was the frequency with which you felt your level of pay was fair? (Likert frequency scale: never, seldom, sometimes, often, very often)
3. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling that my job responsibilities have been fair. (Seven-point Likert scale: strongly disagree/strongly agree)
   3a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you experience feeling that your job responsibilities were fair?
   3b. Of those experiences, what was the frequency with which you felt your job responsibilities were fair? (Likert frequency scale: never, seldom, sometimes, often, very often)
4. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling that my workload has been fair. (Seven-point Likert scale: strongly disagree/strongly agree)
   4a. Of the total number of organizations for which you have worked as an IT professional, in how many of those did you experience feeling that your workload was fair?
   4b. Of those experiences, what was the frequency with which you felt your workload was fair? (Likert frequency scale: never, seldom, sometimes, often, very often)
5. Considering the various jobs I have had and organizations that I worked for over my IT career, I experienced a persistent feeling that the rewards I received have been fair. (Seven-point Likert scale: strongly disagree/strongly agree)
   5a. Of the total number of organizations for which you have worked as an IT professional, in how many did you experience feeling that the rewards you received were fair?
   5b. Of those experiences, what was the frequency with which you felt the rewards you received were fair? (Likert frequency scale: never, seldom, sometimes, often, very often)