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INNOVATING WITH TECHNOLOGY: THE IMPACT OF OVERLOAD, AUTONOMY, AND WORK AND FAMILY CONFLICT

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ABSTRACT

Innovation with information technology (IT) helps companies gain more from their IT investment. IT innovation by individuals can be affected by many factors (such as overload, autonomy, and work / family conflict) and developing a better understanding of these factors can help managers make better decisions about the work environment. Using Partial Least Squares (PLS) to analyze data collected via an online survey from the Pan-Pacific region (n = 233), we found that education, number of extended family members responsible for, and autonomy (work method and work criteria) had a significant effect on trying to innovate with IT. Interestingly, we found that neither work-family conflict nor family-work conflict had a significant direct effect on trying to innovate with IT. Our study found only partial support for previous studies that suggested gender was a significant moderator between perceived overload, autonomy and trying to innovate with information technology. The results of this study are important to both practitioners and researchers as they raise important questions about potential impediments to individual innovation with technology.

INTRODUCTION

The application of information technology (IT) has become a fundamental component of organizational competitiveness (Ahuja and Thatcher 2005; Hamel 1998). Today's hypercompetitive, global economy requires that organizations be proactive in their

utilization of information technologies, or face the possibility of becoming noncompetitive (Nambisan, Agarwal, and Tanniru 1999). Information technology innovation refers to applying computer technology in new ways or acquiring IT applications that are new to a firm (Swanson 1994; Swanson and Ramiller 2004).

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IT innovation often results from efforts of the information systems (IS) department, but can also be initiated by users (Nambisan, Agarwal, and Tanniru 1999). Individuals can apply existing technological features to a broader range of tasks; they can apply technological features to related tasks; or these individuals can apply technology to tasks that were originally bypassed (Rogers 2003). For example, an employee introduced to new database software might develop a department-specific database application to automate recordkeeping and reporting. Because of the potential benefits from IT innovation at the individual level, it is important that organizations understand what motivates or inhibits individuals from utilizing these technologies in new and innovative ways (Ahuja and Thatcher 2005).

Many factors, such as one's attitude toward applying existing technology in new applications, influence IT innovation by individuals (Fichman 2000; Venkatesh, Morris, Davis, and Davis 2003). Attitude is considered an antecedent of intention, which in turn, has been suggested to predict behavior (Fishbein and Ajzen 1975). The problem with intention, however, is that it can be swayed by perceptions of environmental obstacles, and these perceptions cause the individual's goal to become more difficult to obtain (Bagozzi and Warshaw 1990). The individual intending to innovate with information technology must then decide whether to try to achieve that goal despite the perceived obstacles that exist. Research suggests that work and family environment factors influence an individual's trying to innovate (Ahuja and Thatcher 2005; Amabile and Conti 1999). Ahuja and Thatcher (2005) examined the effects of autonomy and overload and the interactions of these two constructs on trying to innovate with IT. The results indicated that autonomy was an antecedent to trying to innovate with information technology, and the relationships between autonomy and trying to innovate, and overload and trying to innovate differed between males and females.

Our study is an extension of the work of Ahuja and Thatcher (2005) and investigates whether work-family conflict and/or family-work conflict influences an individual's trying

CONTRIBUTION

This paper makes an important contribution in the area of technology adoption. We address an issue that is frequently overlooked in the information systems adoption literature, i.e. the idea that intention is not a sufficient predictor of actual adoption or utilization. We investigated four constructs that have only recently been suggested as potential obstacles to an individual's trying to innovate with new or existing technology: perceived overload, perceived autonomy, perceived work-family conflict, and perceived family-work conflict. To our knowledge, this is one of the first studies to examine the impact that conflict between work and family can have on an individual's trying to innovate with information technology (IT) in the work place.

The results indicate that autonomy (work method and work criteria) is an important motivator for an individual's trying to innovate with information technology. Surprisingly, neither family-work conflict nor work-family conflict had a significant impact on the relationships between overload, autonomy, and trying to innovate with information technology (IT).

This research should be of interest to both practitioners and academic researchers. Employees must be provided with a work environment that both encourages and rewards innovative use of IT (work criteria autonomy) and an environment that allows flexibility in how work tasks are performed (work method autonomy). The academic researcher should be interested in the results as it implies that work autonomy is an important determinant of both adoption and utilization of information technology and should be included in future research in these areas. Our findings also suggest that gender is rapidly becoming less of a determining factor in the adoption and utilization of information technology; future work should attempt to verify this finding.

to innovate with information technology. Work-family conflict and family-work conflict are directional in that work can interfere with

family and family can interfere with work creating negative feelings toward the source of the conflict. Research has shown that these conflicts influence job satisfaction (Grandey, Cordeiro, and Crouter 2005), job burnout, and turnover (Armstrong, Riemenschneider, Allen, and Reid 2007; Netemeyer, Boles, and McMurrian 1996). It also has been suggested that these conflicts could influence an individual's trying to innovate with technology (Ahuja and Thatcher 2005). Changes in society, such as social norms, have resulted in both genders dealing with these conflicts at increasing rates. Several recent studies have found that males are taking a more active role in family and household obligations, and that women are embracing more opportunities to pursue careers outside the traditional caregiver path (Sayer 2005; Foley, Ngo, and Lui 2005; Grandey, Cordeiro, and Crouter 2005). It is important for organizations to be aware of the impact these conflicts can have on an individual's trying to innovate with IT. Therefore, similar to Ahuja and Thatcher (2005), we examine how individual perceptions of perceived overload and autonomy influence trying to innovate with IT and how these relationships are moderated by gender. In addition, two additional issues will be addressed:

- Does perceived work-family conflict influence an individual's trying to innovate? Does the interaction of perceived work-family conflict and perceived overload impact an individual's trying to innovate with IT? Does the interaction of perceived work-family conflict and perceived autonomy impact an individual's trying to innovate with IT?
- Does perceived family-work conflict influence an individual's trying to innovate? Does the interaction of perceived family-work conflict and perceived overload impact an individual's trying to innovate with IT? Does the interaction of perceived family-work conflict and perceived autonomy impact an individual's trying to innovate with IT?

This paper is composed as follows. The next section presents literature on the theory supporting this study. The models and their

components are then discussed followed by an explanation of the methodology. The results are then presented and discussed, and contributions to practitioners and researchers are presented in the last section.

THEORY FOUNDATION

Theory of Trying

The theory of trying (TT) is an extension of the theory of planned behavior. The theory of planned behavior (TPB) assumes that behavior is preceded by a deliberate decision to act; and that no barriers, such as environmental factors, will prevent the behavior (Fishbein and Ajzen 1975). In other words, TPB suggests that intention determines behavior (Bagozzi and Warshaw 1990). However, the relationship between intentions and behavior can be influenced by barriers, even if the barriers exist only in the minds of the individual such as the perception of having limited ability or the perception of being assigned too much work. These perceptions influence an individual's intentions to undertake a specific behavior (Bagozzi and Warshaw 1990).

Trying is defined as choosing to undertake the necessary behaviors and satisfying the necessary conditions within one's control to achieve a specific goal (Ahuja and Thatcher 2005). The theory of trying recognizes that factors may interfere between the time an individual forms an intention and the time the individual performs the behavior resulting from the intention. One factor is the amount of effort an individual will dedicate to achieving a goal (Ajzen 1985; Bagozzi and Warshaw 1990). For example, an employee intends to use new software on an existing application but discovers that barriers (lack of skills) exist. How much effort will the individual exert to overcome the lack of skills in order to innovate with the technology? The intention to try is influenced by many factors including past experiences, social norms, attitudes, and expectations. Trying to innovate with IT has been identified as an antecedent to successful IT innovation (Ciborra 1991). Therefore, trying to innovate can lead to improved organizational processes and greater

competitive advantage (Ahuja and Thatcher 2005).

PROPOSED MODEL AND HYPOTHESES

In this study, we investigate work environment factors and trying to innovate with IT. Specifically, we examine the relationships between autonomy and trying to innovate with IT, perceived overload and trying to innovate with IT, perceived work-family conflict and trying to innovate with IT, perceived family-work conflict and trying to innovate with IT, and the interactions between these constructs and trying to innovate with IT. Furthermore, the role of gender as a moderator is also examined.

Autonomy

Job autonomy refers to the degree of freedom, independence, and discretion granted to an individual in scheduling work and determining procedures used in carrying out that work (Hackman and Oldham 1975). To avoid confusion with independence, Breugh (1985) developed three scales for assessing the different aspects of autonomy: work method, work schedule, and work criteria. Work method autonomy refers to an individual being able to choose the procedure by which to accomplish work. Work schedule autonomy refers to an individual being able to control the sequencing of work tasks. Work criteria autonomy refers to an individual providing input about evaluation requirements.

In some cultures, autonomy is granted to individuals while other cultures grant autonomy to work groups. In either case, autonomy has been linked to motivation and better performance by the workers (Man and Lam 2003; Xie and Johns 1995). Xie and Johns (1995) found that when autonomy matched the employees' task requirements, job performance was higher. Autonomy also lowers stress and leads to increased learning initiative and confidence (Au and Cheung 2004). Morgeson, Delaney-Klinger and Hemingway (2005) found that the relationship between autonomy and job performance is complex and that employees with autonomy have the opportunity to perform additional tasks that will be recognized by superiors.

A positive relationship exists between autonomy and an individual's trying to innovate with IT (Ahuja and Thatcher 2005). Autonomy is an important environmental factor for trying to innovate as individuals who are granted control over their work time and work methods are more likely to innovate because they can plan their work. For example, individuals who have the option of choosing work procedures are more likely to utilize IT in new or innovative ways to accomplish a task more quickly or accurately. Individuals with the freedom to schedule their work could arrange the time to experiment with software or other technology to find a more efficient solution for the task. Also, individuals are more likely to innovate when they know innovation is part of the evaluation criteria for their jobs. Therefore, we propose the following hypotheses:

H1a: Perceived work method autonomy positively influences an individual's trying to innovate with IT.

H1b: Perceived work schedule autonomy positively influences an individual's trying to innovate with IT.

H1c: Perceived work criteria autonomy positively influences an individual's trying to innovate with IT.

Overload

Overload refers to the perception by an individual of not having the resources by which to perform a task. The types of resources that are lacking determine the type of overload the individual experiences: quantitative or qualitative (Perrewe and Ganster 1989). Quantitative overload exists when an individual perceives the environment is causing a barrier to accomplishing a task, i.e., not having the necessary time. Qualitative overload exists when an individual perceives he/she lacks the skill, knowledge, or capability to complete the task. Failure increases as overload increases (Sales 1970). Previous research has found that women experiencing quantitative overload will innovate less while men will try to innovate more when experiencing qualitative overload (Ahuja and Thatcher 2005).

Individuals who perceive a shortage of time or resources (quantitative overload) are less likely to innovate. For example, an individual who lacks the time to accomplish a task is unlikely to spend time innovating. An individual who lacks resources such as software or other technology will find it difficult to try to innovate. In addition, an individual lacking skills (qualitative overload) is unlikely to have the ability to try to innovate. Overload leads to exhaustion (Moore 2000), and tired individuals are not likely to be motivated to try to innovate. Therefore, we propose the following hypotheses:

H2a: Perceived quantitative overload negatively influences an individual's trying to innovate with IT.

H2b: Perceived qualitative overload negatively influences an individual's trying to innovate with IT.

Interaction of Autonomy and Overload

Autonomy allows individuals to control their schedule, methods of work, and/or evaluation criteria. Research has shown that increased autonomy reduces an individual's perception of overload (Perrewé and Ganster 1989). Autonomy interacts with overload to increase job motivation, learning, and personal growth (Karasek and Theorell 1990; Claessens, Van Eerde, Rutte, and Roe 2004). Autonomy also reduces overload stress without reducing productivity (Karasek 1979). Previous research has found that perceptions of autonomy and overload interacted to positively affect an individual's trying to innovate with IT (Ahuja and Thatcher 2005).

Individuals who perceive work-related overload but have been granted the freedom to schedule their work, choose procedures for work, and/or provide input for evaluation are more likely to innovate in hopes of reducing or eliminating their perceived overload. For example, an individual who wants to innovate with technology, but lacks the skills to do so, may have the freedom to schedule time for training. Therefore, we propose the following hypotheses:

H3a: Perceived work method autonomy interacts with perceived quantitative

overload to positively influence an individual's trying to innovate with IT.

H3b: Perceived work method autonomy interacts with perceived qualitative overload to positively influence an individual's trying to innovate with IT.

H3c: Perceived work schedule autonomy interacts with perceived quantitative overload to positively influence an individual's trying to innovate with IT.

H3d: Perceived work schedule autonomy interacts with perceived qualitative overload to positively influence an individual's trying to innovate with IT.

H3e: Perceived work criteria autonomy interacts with perceived quantitative overload to positively influence an individual's trying to innovate with IT.

H3f: Perceived work criteria autonomy interacts with perceived qualitative overload to positively influence an individual's trying to innovate with IT.

Gender

Literature pertaining specifically to IT innovation and gender is sparse due mainly to the broad definition of "IT innovation." Recent literature on IT and gender often pertains to Internet usage and various studies have found conflicting results regarding gender (Hupfer and Detlor 2006; Sanchez-Franco 2006; Wasserman and Richmond 2005). For example, Gefen and Straub (1997) identified gender as a key determinant in technology diffusion, while Venkatesh and Morris (2000) found that gender was a significant indicator of both adoption and continued use of technology. Both studies concluded that gender should be considered when investigating IT diffusion. Because men and women seem to differ in their adoption and usage of IT-related technologies, it is likely they will differ in their trying to innovate with technology. In addition, women and men differ in their response to stress in that women appear to respond to overload stress more quickly than do men (Krajewski and Goffin 2005). It could be suggested that women perceiving work overload and autonomy will engage coping mechanisms (innovation) to

deal with the situation. Therefore, we propose the following hypotheses:

H4a: Gender will moderate the relationship between perceived work method autonomy and trying to innovate with information technology.

H4b: Gender will moderate the relationship between perceived work schedule autonomy and trying to innovate with information technology.

H4c: Gender will moderate the relationship between perceived work criteria autonomy and trying to innovate with information technology.

H4d: Gender will moderate the relationship between perceived qualitative overload and trying to innovate with information technology.

H4e: Gender will moderate the relationship between perceived quantitative overload and trying to innovate with information technology.

H4f: Gender will moderate the interaction between perceived work method autonomy,

perceived qualitative overload, and trying to innovate with information technology.

H4g: Gender will moderate the interaction between perceived work schedule autonomy, perceived qualitative overload, and trying to innovate with information technology.

H4h: Gender will moderate the interaction between perceived work criteria autonomy, perceived qualitative overload, and trying to innovate with information technology.

H4i: Gender will moderate the interaction between perceived work method autonomy, perceived quantitative overload, and trying to innovate with information technology.

H4j: Gender will moderate the interaction between perceived work schedule autonomy, perceived quantitative overload, and trying to innovate with information technology.

H4k: Gender will moderate the interaction between perceived work criteria autonomy, perceived quantitative overload, and trying to innovate with information technology.

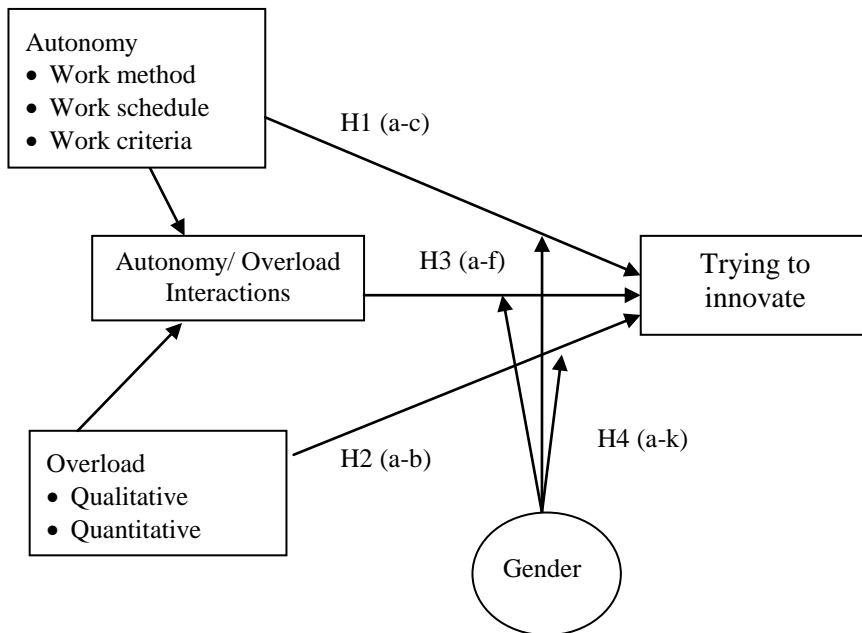


Figure 1. Proposed Research Model – Moderated by Gender

Work-Family Conflict and Trying to Innovate

Research has shown that work-family conflict influences job satisfaction (Grandey, Cordeiro, and Crouter 2005), job burnout, and turnover (Netemeyer, Boles, and McMurrian 1996). The conflict results from the demands of incompatible roles: family versus work. The demands of one role (duties, commitments, expectations) make it difficult for an individual to perform in the other role. Work-family conflict (WFC) refers to work responsibilities that interfere with family-related responsibilities (Netemeyer, Boles, and McMurrian 1996) including work activities that keep an individual preoccupied during family time (Eagle, Icenogle, Maes, and Miles 1998). Work is the source of interference with the family; and therefore, the employee can form negative feelings toward the job (Grandey, Cordeiro, and Crouter 2005). See Figure 2.

Work-family conflict has been shown to have a strong negative influence on performance -- to the extent that employee turnover becomes an issue (Netemeyer, Maxham and Pullig 2005). Work-family conflict has also been shown to have a strong negative effect on an individual's perception of a satisfied life, defined as making few changes to one's life if given the chance to live it again (Aryee, Fields, and Luk 1999). In cultures where family is important and work is considered a means to supporting the family, interference with the family taxes the limit of an individual's cognitive and emotional resources for work. Consequently, an individual is resistant to performing beyond one's expected job duties (Netemeyer, Maxham, and Pullig 2005), and innovation

requires individuals to go beyond their expected daily tasks (Ramamoorthy, Flood, Slattery, and Sardessai 2005). Therefore,

H5: Perceived work-family conflict has a negative impact on an individual's trying to innovate with IT.

Autonomy has been shown to ameliorate overload (Ahuja and Thatcher, 2005) and improve job performance (Grandey, Cordeiro, and Crouter 2005). However, studies show mixed influence of perceived autonomy on perceived work-family conflict. Andreassi and Thompson (2007) and Ahuja, Chudoba, Kacmar, McKnight, and George (2007) found no relationship between job autonomy and perceived work-family conflict; however, they found that perceived job autonomy mediated the relationship between locus of control and perceived work-family conflict. Parasuraman and Simmers (2001) found that autonomy, in the context of self-employed individuals, creates higher levels of perceived work-family conflict.

Netemeyer, Maxham, and Pullig (2005) suggest individuals possess a finite supply of energy and cognitive effort to expend between work and family so one of the roles is short-changed (Lenaghan, Buda, and Eisner 2007). Consequently, in the scenario of work-family conflict, work interferes with family so that family time is reduced and negative feelings are created toward work. The resulting conflict can reduce job satisfaction (Boles, Howard, and Donofrio 2001), lower energy levels (Googins 1991), and have such a strong negative impact on one's perception of work that the result can be employee turnover (Netemeyer, Brashear-Alejandro, and Boles 2004). It is expected that the presence of

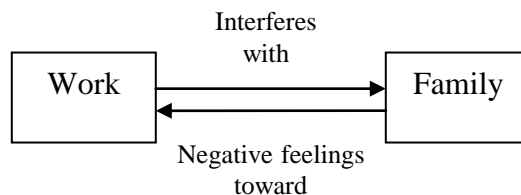


Figure 2. Work-family conflict.

autonomy in this situation will not be adequate in restoring the cognitive and emotional resources needed to perform above one's expected duties and trying to innovate with information technology. Therefore,

H6a: Perceived work method autonomy interacts with perceived work-family conflict to have a negative influence on an individual's trying to innovate with IT.

H6b: Perceived work schedule autonomy interacts with perceived work-family conflict to have a negative influence on an individual's trying to innovate with IT.

H6c: Perceived work criteria autonomy interacts with perceived work-family conflict to have a negative influence on an individual's trying to innovate with IT.

In their study of work stressors and work-family conflict, Foley, Ngo, and Lui (2005) found that overload was positively related to work-family conflict among Chinese workers in Hong Kong. In a U.S. study on work-family conflict and leaving work early, Boyar, Maertz, and Pearson (2005) found that *both* men and women leave work early more often when they have high levels of work-family conflict. Leaving work early would add

to an individual's perception of work overload since the resource of time would be negatively affected. It is likely that increases in perceived overload in a situation in which high work-family conflict exists would result in less effort being expended to innovate with IT. Thus, we propose:

H7a: Perceived work-family conflict interacts with perceived quantitative overload to negatively influence an individual's trying to innovate with IT.

H7b: Perceived work-family conflict interacts with perceived qualitative overload to negatively influence an individual's trying to innovate with IT.

Family-Work Conflict and Trying to Innovate

Family-work conflict (FWC) refers to family activities interfering with work responsibilities and causing negative feelings toward the family. That is, an individual facing time commitments, general demands, and pressures created by the family role will find it difficult to meet demands of a work role (Netemeyer, Boles, and McMurrian 1996). See Figure 4.

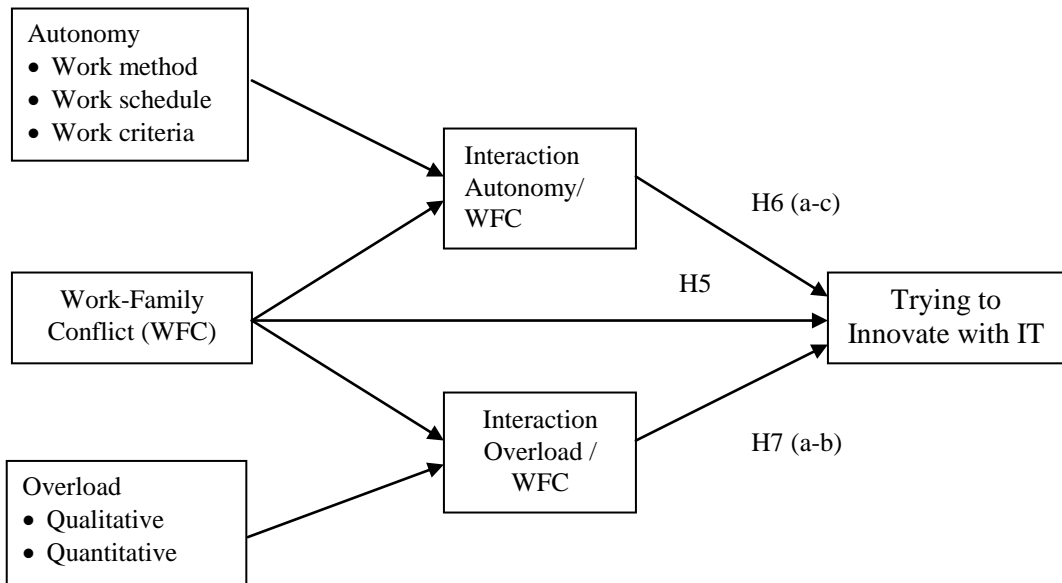


Figure 3. Trying to Innovate with IT – Work Family Conflict

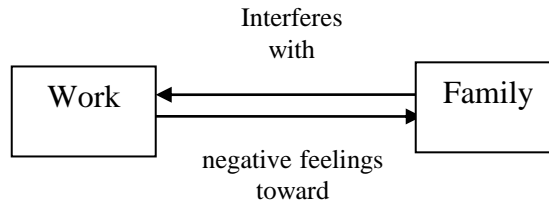


Figure 4. Family-work conflict.

The negative feelings toward family can spill over to the work place, but the effect on job performance is not as severe as that of work-family conflict. Instead of the conflict resulting in employee turnover, family-work conflict has been shown to lower productivity (Netemeyer, Maxham and Pullig 2005), lower job satisfaction (Aryee, Fields, Luk 1999), and restrict employees from performing above their expected levels (Netemeyer, Maxham, Pullig 2005). Innovation requires individuals to go beyond their expected daily tasks (Ramamoorthy, Flood, Slattery, and Sardessai 2005), but the spill over of family-work conflict will likely prevent trying to innovate. Therefore,

H8: Perceived family-work conflict has a negative impact on an individual's trying to innovate with IT

As mentioned previously, autonomy allows freedom to control one's work schedule, work method, or work criteria. Coupled with the fact that research has shown that individuals with family-work conflict are accustomed to juggling multiple responsibilities (Boyar, Maertz, and Pearson 2005), having this freedom at work would likely increase trying to innovate. Work, itself, is not the source of conflict and innovation may be viewed as refreshing and rejuvenating. The presence of autonomy would reduce the extra cognitive and emotional overload at work and increase the likelihood of an individual's trying to innovate with information technology. Therefore,

H9a: Perceived family-work conflict interacts with perceived work method autonomy to have a positive influence on an individual's trying to innovate with IT.

H9b: Perceived family-work conflict interacts with perceived work schedule autonomy to have a positive influence on an individual's trying to innovate with IT.

H9c: Perceived family-work conflict interacts with perceived work criteria autonomy to have a positive influence on an individual's trying to innovate with IT.

Research has found that families with children experienced family-work conflict as a result of lacking time to devote to their jobs (Eagle, Icenogle, Maes, and Miles 1998). Individually, overload and family-work conflict are expected to have a negative relationship with trying to innovate. Together, it is expected that as overload increases, an individual will not have the time or energy to innovate with information technology. Therefore,

H10a: Perceived family-work conflict interacts with perceived quantitative overload to have a negative influence on an individual's trying to innovate with IT.

H10b: Perceived family-work conflict interacts with perceived qualitative overload to have a negative influence on an individual's trying to innovate with IT.

RESEARCH METHODOLOGY

Sample

It was important that we survey employees as these individuals are more likely to have the experience of work-family and family-work conflict. In other words, employees who are married or have a significant other and/or have children or extended family responsibilities, are the appropriate candidates for understanding the

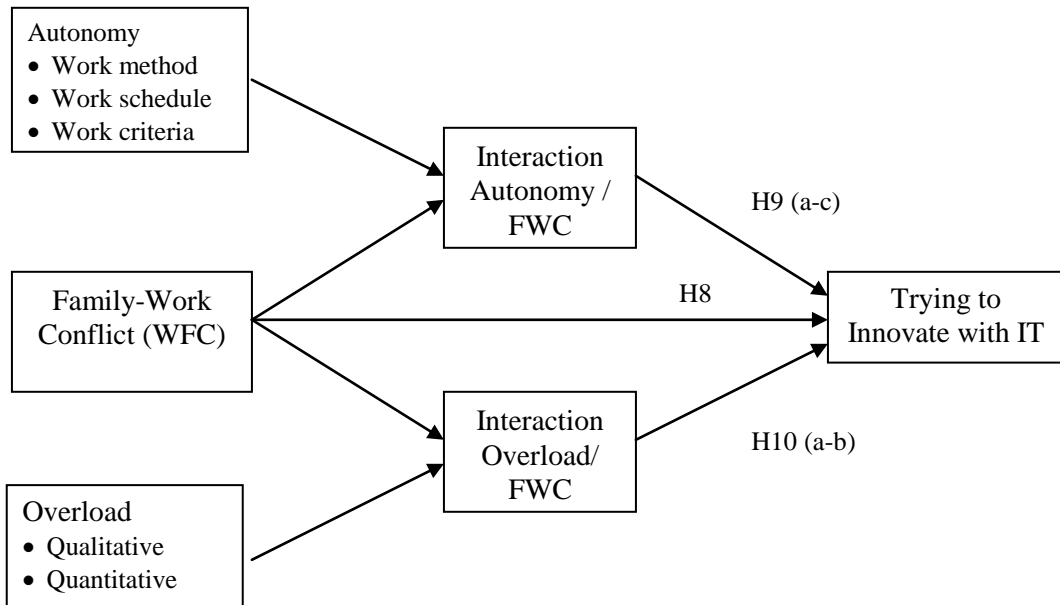


Figure 5. Trying to Innovate with IT – Family-Work Conflict

pressures that work and family life impose on a day-to-day, 24/7 schedule.

We collected data through an online survey during a two-week period during fall of 2006. Participation for the survey was gained by extending extra credit to twenty-four students in an executive MBA class offered in Singapore. The students were from several countries including Australia, Cambodia, India, Indonesia, Malaysia, Singapore, South Korea, and the Philippines. This group represented 20 companies from diverse industries. Each student was asked to select a minimum of five employees at their workplace to complete the online survey; several of these individuals solicited more (minimum = 5; maximum = 17) than five employees to participate. The requirement for participation was that the employees use computing technology in their day-to-day tasks.

Measures

The survey had five sections: perceived overload, perceived autonomy, perceived family-work conflict and perceived work-family conflict, trying to innovate, and demographics. Demographics included age,

gender, marital status, level of education completed, number of children, number of extended family members for whom respondent is responsible, and current work position. Trying to innovate, the dependent variable, was measured using two items. This is consistent with the study on work environment and trying to innovate by Ahuja and Thatcher (2005), IT implementation research by Bagozzi, Davis and Warshaw (1992), and IT acceptance by Venkatesh and Morris (2000).

The three items for qualitative overload and the three items for quantitative overload were measured using the items utilized by Ahuja and Thatcher (2005). Autonomy was measured by scales developed by Breugh (1985) as presented by Sadler-Smith, El-Kot and Leat (2003). The scales have previously shown satisfactory internal consistency, test-retest reliability, construct validity and discriminant validity (Breugh 1985). The scale consists of three subscales (work method, work schedule, work criteria) each consisting of three items.

The items on perceived work-family conflict were developed by Small and Riley

(1990). Grandey Cordeiro and Crouter (2005) later modified these items to measure perceived family-work conflict. The scales, which are part of a multidimensional measure of work spillover, have shown construct validity and internal consistency. There are six items measuring perceived work-family conflict and five items measuring perceived family-work conflict. All of the above items utilized a seven-point Likert scale anchored from strongly disagree (1) to strongly agree (7). The items utilized in this study are provided in Appendix A.

The instrument was pilot tested using students from a doctoral program at a university located in the mid-western part of the United States. These respondents were chosen due to their likelihood to have family and work responsibilities, their diverse cultural background, and the likelihood of using technology to complete day-to-day tasks. The pilot test resulted in improvements to verbiage and survey presentation.

RESULTS

Demographics

We collected 233 usable responses. Of these, 153 were male and 80 were female. Approximately 93 percent of the respondents were between 25 and 54 years of age; less than

5 percent were under 25 years of age. Slightly more than 90 percent have had two or more years of college education; while 67 percent indicated they had taken some graduate level classes or had completed a graduate program of study. Seventy-two percent of the respondents were in management positions within their organization, with another 14 percent reporting their job position as professional or support staff. Seventy-six percent of the respondents are currently married and another 21.5 percent had been married, but are now divorced. Many of the respondents indicated that they were responsible for one or two extended family members (45.1%), while another 44.6 percent indicated they were responsible for three or more extended family members. The demographics of these respondents suggest that they are better educated and a higher percentage work in management or professional positions than would be expected from a random sampling of the Pan-Pacific work force (<http://www.singstat.gov.sg>). These differences are not unexpected as the survey respondents were associated with individuals enrolled in an executive MBA program and generally employed in full-time management or professional positions within their organizations (See Table 1).

Table 1. Demographics of Study Respondents (n = 233)

Gender			Age			Education		
Male	153	65.7%	<18	1	0.4%	GED	5	2.1%
Female	80	34.3%	18-24	10	4.3%	High School	17	7.3%
Marital Status			25-34	89	38.2%	2 Year Degree	23	9.9%
Married	177	76.0%	35-44	91	39.1%	4 Year Degree	31	13.3%
Divorced	50	21.5%	45-54	37	15.9%	Some Graduate	92	39.5%
Separated	4	1.7%	55-64	5	2.1%	Master's	62	26.6%
Widowed	2	0.9%	>64	0	0.0%	Doctorate	3	1.3%
			Extended Family Responsibility			Job Title		
			0	24	10.3%	Upper Mgmt	29	12.5%
			1	38	16.3%	Middle Mgmt	77	33.2%
			2	67	28.8%	Junior Mgmt	61	26.3%
			3	41	17.6%	Professional	17	7.3%
			4	35	15.0%	Support	16	6.9%
			5	8	3.4%	Consultant	6	2.6%
			6	20	8.6%	Other	27	11.2%

Data Analysis

We used Partial Least Squares (PLS) to estimate the hypothesized relationships. PLS is frequently used in MIS research (Karimi, Somers, and Gupta 2004; Chin, Marcolin, and Newsted 2003) because of its ability to examine linear relationships without the restrictions of other structural equation modeling methods, such as non-normal distributions and small sample size. We used a two-step approach similar to that outlined by Gerbing and Anderson (1988). Step one tested the reliability and validity of the measurement model and step two evaluated the structure of the models of interest in this study.

Measurement Model

We assessed convergent validity by examining the loadings obtained through a factor analysis, the composite reliability of the constructs, and the average variance extracted (AVE). Hair, Tatham, Anderson, and Black (1998) suggest that factor loadings over 0.50 are particularly significant and items that do not meet this criterion should be discarded. Initial analysis indicated that one item from family-work conflict, two items from work-family conflict, and three items for work schedule autonomy did not have loadings greater than 0.50, and we removed these from further analysis. This resulted in hypotheses 1b, 3c, 3d, 6b, and 9b (those related to work schedule autonomy) not being tested in this study. See appendix B for the final factor solution. As can be seen in appendix C, the composite reliability scores for every construct (full group and gender subgroups) were greater than 0.70, which is the suggested benchmark for acceptable reliability (Barclay, Thompson and Higgins 1995). AVE examines the amount of variance that a construct captures from its indicators relative to the amount due to measurement error (Chin 1998), and should be greater than 0.50 (Hu, Whinston, Zhang 2004; Komiak and Benbasat 2006). Appendix C indicates that AVE scores were greater than this minimum cut-off in both the full sample and gender subgroups.

We assessed discriminant validity by examining the relationship between correlations among constructs and the square root of the AVEs (Fornell and Larcker 1981).

Several researchers have suggested that the square root of the AVE should be greater than 0.70 and greater than the construct's correlation with the other constructs (Barclay, Thompson, and Higgins 1995; Chin 1998; Fornell and Larcker 1981). This indicates that more variance is shared between the construct and its indicators than with other constructs. Appendix C shows that the square roots of all the AVEs are greater than 0.70 and are greater than the correlations among constructs (i.e., the off-diagonal items), indicating satisfactory discriminant validity of all the constructs.

Structural Models

Following the method outlined by Gerbing and Anderson (1988), we next tested a series of nested structural models. The four models tested included the base model (Model 1), the moderation impact of gender (Model 2), perceived work-family conflict added to the base model (Model 3), and perceived family-work conflict added to the base model (Model 4). Venkatesh and Morris (2000) suggested that demographic variables could confound structural relationships; therefore, the variables of age, education, marital status, number of children, and number of extended family members responsible for were incorporated into the data analysis. Age, marital status, and number of children were not found to be significant; but the variables of education (+) and number of extended family members responsible for (+) were significant and could have a confounding effect on the structural relations tested in our study. The explanation of variance of the control variables within the full sample was $R^2 = 0.092$. To allow for the influence of education and number of family members responsible for, these variables were incorporated into the structural models tested¹.

In model 1, we proposed a direct relationship between the two constructs of perceived autonomy (work method and work criteria) and trying to innovate with IT, the two constructs of perceived overload (quantitative and qualitative) and trying to innovate with IT, and the interaction between the constructs of perceived autonomy and perceived overload and their relationships with trying to innovate with IT. We calculated interaction terms utilizing the method suggested by Joreskog

and Yang (1996). Items for each construct were standardized and centered (Stone-Romero 1988); and then the items involved in the interaction were multiplied together, and the products were used to estimate the interaction effect (Ahuja and Thatcher 2005)².

The PLS parameter estimates for Model 1 are presented in Table 3. We formulated two nested models to test hypotheses H1 – H3. The first structural model tested the direct effect of the two constructs of perceived autonomy, and the two constructs of perceived overload on trying to innovate with IT. Both work method autonomy (0.194, $p < 0.01$), and work criteria autonomy (0.122, $p < .05$) had a positive significant effect on trying to innovate with IT,

supporting hypotheses 1a and 1c. Hypotheses 2a and 2b were not supported.

In the second structural model, we added the interaction terms. Analysis indicated that while the direct effects for perceived work method autonomy (0.139, $p < 0.05$) and perceived work criteria autonomy (0.149, $p < 0.05$) remained significant, only one of the interaction terms (perceived qualitative overload and perceived work method autonomy (-0.154, $p < 0.05$) had a significant effect on trying to innovate with IT. This suggests that only hypothesis 3b was supported, while 3a, 3e, and 3f were not supported. Adding the interaction variables into the analysis significantly increased the R² from 15.1% to 21.7% ($F_{calc} = 3.190, p < 0.01$).

Table 2. Impact of Demographic Variables on Structural Relations

Control Variables	Full Sample
R ²	0.092
Age	0.097
Education	0.204 **
Marital Status	-0.139
# of Children	-0.140
# of Family Members Responsible for	0.165 **

** = .01 significance

Table 3. Baseline Model Summary

Control Variables		Full Sample
	R ²	0.151
	Education	0.221 **
	# of Extended Family Members Responsible for	0.148 **
Direct Effects		
	R ²	0.151
H1a	Work Method Autonomy(WMA)	0.194 **
H1c	Work Criteria Autonomy (WCA)	0.122 *
H2a	Quantitative Overload (QuanOv)	0.111
H2b	Qualitative Overload (QualOv)	-0.071
Two-Way Interactions		
	R ²	0.217
	Work Method Autonomy (WMA)	0.139 *
	Work Criteria Autonomy (WCA)	0.149 *
	Quantitative Overload (QuanOv)	0.106
	Qualitative Overload (QualOv)	-0.075
H3a	WMA * QuanOv	-0.139
H3b	WMA * QualOv	-0.154 *
H3e	WCA * QuanOv	-0.058
H3f	WCA * QualOv	0.182

* = .05 significance
 ** = .01 significance

In model 2, we added the moderation effect of gender on the relationships tested in model 1 and investigated hypothesis H4. We formulated structural models for both subgroups (males and females) and tested for significant differences between corresponding path coefficients. Chin, Marcolin and Newsted (2003) has suggested this can be accomplished in PLS by running bootstrap re-samplings for each sub-group and utilizing the standard errors for the structural paths provided in re-sampling output in order to calculate the t-test for the difference in paths between the subgroups. Chin, Marcolin and Newsted (2003) provide two different approaches for calculating the t-tests of interest: one that assumes equal variance between the samples, and another that is appropriate when the variances for the two samples are assumed to be different. The latter was the case in this study and required that the following formula be utilized to calculate the t-score:

$$\frac{\text{Path}_{\text{sample-1}} - \text{Path}_{\text{sample-2}}}{\text{SQRT}(\text{S.E.}_{\text{sample-1}}^2 + \text{S.E.}_{\text{sample-2}}^2)}$$

The results indicated that hypothesis 4 was partially supported. There were no significant differences between genders for the two constructs of perceived autonomy and trying to innovate with IT or between perceived quantitative overload and trying to innovate with IT; the only direct significant difference was for perceived qualitative overload and trying to innovate with IT ($t_{\text{calc}} = 1.697, p < 0.05$). Therefore, hypotheses 4a, 4c and 4e were not supported, but hypothesis 4d was supported. Additional support comes when the interaction terms for these constructs are tested across genders. This analysis suggests that males and females differ significantly only on two of the constructs tested in this study; specifically, the interaction term involving perceived qualitative overload and perceived work method autonomy ($t_{\text{calc}} = 1.656, p < 0.05$), and the interaction term for perceived qualitative overload and perceived work criteria autonomy ($t_{\text{calc}} = 2.516, p < 0.01$). Therefore, hypothesis 4f and 4h are supported, while hypotheses 4i and 4k were not supported (See Table 4). These findings suggest that males and females differ only slightly in their

perceptions of how autonomy, overload, and the interaction of these constructs impact trying to innovate with IT. Adding the interaction terms resulted in a significant change in R^2 for males ($F_{\text{calc}} = 2.703, p < 0.05$) while the change in R^2 was not significant for females.

In model 3, we tested the direct effect of perceived work-family conflict on trying to innovate with IT, and the interaction of perceived work-family conflict with the two constructs of perceived autonomy and the two constructs of perceived overload (H5-H7). Analysis indicated that perceived work-family conflict ($-0.041, p > 0.05$) did not have a statistically significant impact on trying to innovate with IT. When the interaction effects were added, only work method autonomy and work-family conflict ($-0.197, p < 0.01$) was significant. Thus, hypotheses 5, 6c, 7a, and 7b were not supported, while only hypothesis 6a was supported. Adding the interaction variables into the analysis significantly increased the R^2 from 15.2% to 26.3% ($F_{\text{calc}} = 3.980, p < 0.01$). See Table 5.

In model 4, we tested the direct effect of perceived family-work conflict, and the interactions between perceived family-work conflict, perceived quantitative overload and perceived qualitative overload, and the two perceived autonomies were tested (H8-H10). Perceived family-work conflict ($-0.091, p > 0.05$) did not have a significant direct effect on trying to innovate with IT. Perceived work method autonomy ($0.173, p < 0.01$), as well as perceived work criteria autonomy ($0.121, p < 0.05$), were statistically significant on direct effects. Interestingly, there were no significant relationships between the two constructs of perceived overload and perceived family-work conflict or between the two constructs of perceived autonomy and perceived family-work conflict. Therefore, hypotheses 8, 9a, 9c, 10a, and 10b were not supported. Adding the interaction variables into the analysis did not significantly increase the R^2 . See Table 6 for the results of this analysis and see Table 7 for a summary of the hypotheses results.

Table 4. Model 2 – Moderation Effect of Gender

Construct		Males	Females	Comparison of Paths
		Standardized Path Coefficient	Standardized Path Coefficient	T-Value
Direct Effects				
	R ²	0.162	0.202	
H4a	Work Method Autonomy(WMA)	0.124	0.172	0.281
H4c	Work Criteria Autonomy (WCA)	0.173 *	0.255 *	0.389
H4d	Qualitative Overload (QualOv)	-0.163	0.179	1.697 *
H4e	Quantitative Overload (QuanOv)	-0.158	0.017	0.623
Two-Way Interactions				
	R ²	0.292	0.275	
	Work Method Autonomy(WMA)	-0.030	0.165	0.835
	Work Criteria Autonomy (WCA)	0.250 *	0.219 *	0.157
	Quantitative Overload (QuanOv)	0.132	0.059	0.397
	Qualitative Overload (QualOv)	-0.135	0.141	1.473
H4f	WMA * QualOv	-0.193 **	0.137	1.656 *
H4h	WCA * QualOv	0.273 *	-0.278	2.516 **
H4i	WMA * QuanOv	-0.125	-0.172	0.168
H4k	WCA * QuanOv	-0.167	0.050	0.740

* = .05 significance
 ** = .01 significance

Table 5. Model 3 – Impact of Perceived Work-Family Conflict.

Control Variables		Full Sample
	Education	0.218 **
	# of Extended Family Members Responsible for	0.149 *
Direct Effects		
	R ²	0.152
	Work Method Autonomy(WMA)	0.197 **
	Work Criteria Autonomy (WCA)	0.113
	Quantitative Overload (QuanOv)	0.124
	Qualitative Overload (QualOv)	-0.066
H5	Work Family Conflict (WFC)	-0.041
Two-Way Interactions		
	R ²	0.263
	Work Method Autonomy(WMA)	0.226 **
	Work Criteria Autonomy (WCA)	0.035
	Quantitative Overload (QuanOv)	0.075
	Qualitative Overload (QualOv)	-0.039
	Work Family Conflict (WFC)	0.006
H6a	WFC * WMA	-0.197 **
H6c	WFC * WCA	-0.106
H7a	WFC * QuanOv	0.106
H7b	WFC * QualOv	0.199

* = .05 significance
 ** = .01 significance

Table 6. Model 4 – Impact of Perceived Family-Work Conflict.

Control Variables		Full Sample
	Education	0.221 **
	# of Extended Family Members Responsible for	0.144 **
Direct Effects		
	R ²	0.157
	Work Method Autonomy(WMA)	0.173 **
	Work Criteria Autonomy (WCA)	0.121 *
	Quantitative Overload (QuanOv)	0.123
	Qualitative Overload (QualOv)	-0.045
H8	Family Work Conflict (FWC)	-0.091
Two-Way Interactions		
	R ²	0.274
	Work Method Autonomy(WMA)	0.158 *
	Work Criteria Autonomy (WCA)	0.079
	Quantitative Overload (QuanOv)	0.131
	Qualitative Overload (QualOv)	0.002
	Family Work Conflict (FWC)	-0.075
H9a	FWC * WMA	-0.109
H9c	FWC * WCA	-0.206
H10a	FWC * QuanOv	0.154
H10b	FWC * QualOv	0.195

* = .05 significance

** = .01 significance

DISCUSSION

We attempted to extend the work of Ahuja and Thatcher (2005) by investigating the influence perceived work-family conflict and perceived family-work conflict have in trying to innovate with information technology. We also investigated the role of perceived autonomy in more detail by breaking this construct into specific first order constructs that had been suggested in previous literature.

The Work Environment

Like Ahuja and Thatcher (2005), we found that quantitative overload has a positive impact on trying to innovate with IT; however the relationship was not significant. Although this is contrary to what was hypothesized, we believe that this makes intuitive sense, as individuals who are faced with increasing amounts of work, reduced availability of time, or both, will look for new or better ways of completing assigned tasks. All one has to do is walk through an airport to see how individuals are turning to technology to stay connected to their work environment. Laptops, wireless networks, personal digital assistants (PDAs), and cellular phones are technologies that are being utilized to enable the modern “road

warrior” to keep pace with increased demands of the work environment (Ahuja, Chudoba, Kacmar, McKnight and George 2007).

We also found that perceived qualitative overload did not have a significant impact on trying to innovate with IT. Two possible explanations exist. First, individuals with low perceptions of skills and knowledge may lack the confidence or efficacy to try to innovate with IT. Second, individuals who have attained a high level of skill and knowledge within a specific application may not feel compelled to innovate with information technology.

Intuitively, autonomy in the work environment should encourage individuals to try to innovate with IT. Autonomy allows an individual to determine how work should be done, when work should be completed, and how work would be evaluated, thus allowing flexibility in these areas. We found that perceived work method autonomy and perceived work criteria autonomy had a positive direct effect on trying to innovate with IT. This is not surprising as perceived work method autonomy would allow an individual to try new applications with existing technology or to learn new technology for current

applications. When an individual is able to choose how work is to be completed, it is likely that they will select a method that requires the least effort or time on their part to complete the assigned task. This also relates to the role of perceived work criteria autonomy; if an individual knows that innovation is part of their evaluation, they will be more likely engage in that behavior. This finding is relevant to employers as it suggests that if they want their employees to utilize information technology in innovative ways, it is important to let these individuals determine how work is

to be completed and then to recognize this innovation in the evaluation process.

Gender

Ahuja and Thatcher (2005) found that significant differences existed between males and females for both types of perceived overload, perceived autonomy, and their interaction. Our results partially support these findings. In the current study, males and females did not differ significantly on either of the two constructs of perceived autonomy, but had significant differences for perceived qualitative overload and its impact on trying to

Table 7. Summary of Findings

		Model 1	Model 2	Model 3	Model 4
H1a	WMA → T2I (+)	**			
H1b	WSA → T2I (+)	Not tested			
H1c	WCA → T2I (+)	*			
H2a	QnOv → T2I (-)	ns			
H2b	QIOv → T2I (-)	ns			
H3a	WMA * QnOV → T2I (+)	ns			
H3b	WMA * QIOV → T2I (+)	*			
H3c	WSA * QnOV → T2I (+)	Not tested			
H3d	WSA * QIOV → T2I (+)	Not tested			
H3e	WCA * QnOV → T2I (+)	ns			
H3f	WCA * QIOV → T2I (+)	ns			
Moderation – Gender					
H4a	WMA → T2I		ns		
H4b	WSA → T2I		Not tested		
H4c	WCA → T2I		ns		
H4d	QIOv → T2I		*		
H4e	QnOv → T2I		ns		
H4f	WMA * QIOV → T2I		*		
H4g	WSA * QIOV → T2I		Not tested		
H4h	WCA * QIOV → T2I		*		
H4i	WMA * QnOV → T2I		ns		
H4j	WSA * QnOV → T2I		Not tested		
H4k	WCA * QnOV → T2I		ns		
H5	WFC → T2I (-)			ns	
H6a	WFC * WMA → T2I (-)			**	
H6b	WFC * WSA → T2I (-)			Not tested	
H6c	WFC * WCA → T2I (-)			ns	
H7a	WFC * QnOv → T2I (-)			ns	
H7b	WFC * QIOv → T2I (-)			ns	
H8	FWC → T2I (-)				ns
H9a	FWC * WMA → T2I (+)				ns
H9b	FWC * WSA → T2I (+)				Not tested
H9c	FWC * WCA → T2I (+)				ns
H10a	FWC * QnOV → T2I (-)				ns
H10b	FWC * QIOV → T2I (-)				ns

T2I: trying to innovate ns: not supported *: significant @ 0.05 **: significant @ 0.01

innovate with technology. Males and females also differed significantly on how they would use technology when perceived qualitative overload is moderated by either perceived work method autonomy or perceived work criteria autonomy. Our results suggest that females are more likely to try to innovate with technology when they are not sure how to accomplish a specific task but have flexibility in how the task is to be performed. Males, on the other hand, would be less likely to try to innovate in the same situation. Apparently, males and females both value work criteria autonomy and will try to innovate with IT if using IT is an important part of their job evaluation; however, the importance of work criteria autonomy as a motivator to try to innovate with technology seems to diminish for females as perceived qualitative overload increases. The importance of work criteria autonomy might be related to the work culture that exists in many Pan-Pacific countries. These countries tend to have high power-distance scores which indicate that structure and respect for supervisors tend to be very important.

Work-Family Conflict and Family-Work Conflict

Interestingly and somewhat surprisingly, work-family conflict (WFC) and family-work conflict (FWC) had very little impact on trying to innovate with IT. Ahuja and Thatcher (2005) had conjectured that conflict between work and family would have a negative impact on trying to innovate with IT; specifically, suggesting that increased work-family conflict would make it more difficult for individuals to find the time or the resources to look for new technologies for existing applications or to find new uses for existing technologies. The results of this study were counter to what was expected as neither work-family conflict nor family-work conflict had a significant, direct impact on trying to innovate with IT. The only significant effect occurred when the interaction between work-family conflict and work method autonomy was investigated. This suggests that the respondents will be more likely to innovate with IT when they have work method autonomy and are faced with a situation where work interferes with family. There are at least

two possible explanations for this finding. First, in the Pan-Pacific countries, work obligations and loyalty to the organization are considered very important and long work days are not uncommon. The expectation of long hours at work, we believe, can diminish the perceived conflict that can occur between work and family. For example, if all of your colleagues are working a 50-60 or more hour week, and that is what is expected from everyone, there will not be the frustration that can occur if it is not the cultural norm. Second, Pan-Pacific countries tend to have cultures that are very family oriented (Tan and Farley 1987); this could explain why family-work conflict was not a direct predictor of trying to innovate with IT. Individuals from these countries may be able to better separate the obligations of work and family, thus reducing perceived conflicts between these two components (Aryee, Fields, and Luk 1999).

LIMITATIONS

As all studies have limitations, it is important to recognize those that may exist within this study. First, the sampling frame consisted of individuals from the Pan-Pacific region; because of cultural differences that exist between this and other regions of the world, the generalizability of the findings of this study could be limited. Future studies should be carried out in other cultures to see if the findings of this study are similar. Second, this study did not control for or investigate the role of technology within each respondent's job. It is possible that some of the respondents were in positions that do not offer the opportunity to innovate with existing or new technologies; this is an area that should be considered in future studies that investigate innovation and technology. Third, the constructs tested in this study were not a comprehensive set; there are other important variables that could influence an individual's intention to try to innovate with IT. Fourth, the common method bias present in this study restricts the perceptions of environmental factors and trying to innovate to the individual respondent.

FUTURE RESEARCH

Future research is needed to understand how changing roles of males and females in society moderate the relationship between perceived work-family conflict and trying to innovate with information technology and between perceived family-work conflict and trying to innovate with information technology. Other variables also need to be investigated such as job context, self-efficacy, personality and motivation. Individual differences will play a role in how individuals respond to and cope with environmental factors of overload, autonomy and conflict.

CONCLUSION

This study investigated an important topic in the modern business organization; namely, how do perceptions of overload, autonomy, and work and family conflict

influence an individual's trying to innovate with information technology. As organizations "right size" and technologies provide more capabilities and mobility, it is important for managers to provide work environments that encourage individuals to look for ways to use existing technologies for new applications or to find new technologies that can improve existing processes or bring new opportunities into the organization. The findings of this study suggest that managers can promote an individual's trying to innovate with IT by allowing work method autonomy and by rewarding individuals that try to innovate with IT (work criteria autonomy). The development of the "wireless world" provides the forward thinking manager the opportunity to redesign the work environment for employees. This will result in greater innovation within the organization and, hopefully, a more successful business.

¹In an effort to determine if the number of extended family members or education had a confounding impact on the structural relations tested in our study, we conducted a post hoc test for each of these demographic variables. The post hoc test consisted of removing the demographic variable of interest and then rerunning the various models tested in our study. If the demographic variable of interest had a confounding effect, the structural relationships should change significantly i.e. from significant to non-significant or from non-significant to significant.

The results of these post hoc tests suggest that neither demographic variable changed the initial findings of our study. In each case, only one structural relationship changed; in the case of the number of extended family members, it was from non-significant to (perceived work criteria autonomy and perceived work family conflict); for education, it was from significant to non-significant (perceived work criteria autonomy and trying to innovate with information technology). These findings suggest that caution should be exercised when interpreting these two relationships.

²Recently, Goodhue, Lewis and Thompson (2007) questioned the approach suggested by Chin, Marcolin and Newsted (2003) to measure interaction effects utilizing partial least squares (PLS). Goodhue, Lewis and Thompson indicated that the product indicator (PI) approach provided less statistical power and could result in paths being not significant when indeed they are. Their findings indicated that this situation would be especially problematic when sample size was small or when 16 or more indicators were used for a single construct. Goodhue, Lewis and Thompson concluded that 1) when sample size is adequate and four or fewer indicators per construct were used, PLS was a powerful tool for statistical analysis; and 2) that statistically significant paths would remain statistically significant regardless of the method used. As this study utilized the methods suggested by Chin, Marcolin and Newsted, we felt it appropriate to do a post hoc test utilizing the product of the sums (PS) approach to validate the results of our initial analysis.

The results of this post hoc analysis indicated that only one of the previously tested paths changed from not significant to significant (H9a: Work method autonomy would interact with family work conflict to negatively influence trying to innovate with IT). This would suggest that this path may indeed be significant and that further study is warranted.

REFERENCES

- Ahuja, M.K. Chudoba, K.M., Kacmar, C.J., McKnight, D.H., George, J.F., "IT road warriors: Balancing work-family conflict, job autonomy, and work overload to mitigate turnover intentions," *MIS Quarterly*, 2007, 31:1, 1-17.
- Ahuja, M.K. and J.B. Thatcher, J.B., "Moving beyond intentions and toward the theory of trying: effects of work environment and gender on post-adoption information technology use," *MIS Quarterly*, 2005, 29:3, 427-459.
- Ajzen, I., "From intentions to actions: A theory of planned behavior," In *Action Control: From Cognition to Behavior*, Kuhl, J. and J. Beckmann (eds.), New York: Springer, 1985, 11-39.
- Amabile, T. M., and Conti, R.(1999) "Changes in the work environment for creativity for downsizing," *Academy of Management Journal*, 42:6, 641-651.
- Andreassi, J.K., and Thompson, C.A., "Dispositional and situational sources of control: Relative impact on work-family conflict and positive spillover," *Journal of Managerial Psychology*, 2007, 22:8, 722-740.
- Armstrong, D.J., C.K. Riemenschneider, M.W. Allen, and M.F. Reid, "Advancement, voluntary turnover and women in IT: A cognitive study of work-family conflict," *Information & Management*, 2007, 44:2, 142-153.
- Aryee, S., D. Fields, V. Luk, "A cross-cultural test of a model of the work-family interface," *Journal of Management*, 1999, 25:4, 491-511.
- Au, K. and M.W.L. Cheung, "Intra-cultural variation and job autonomy in 42 countries," *Organization Studies*, 2004, 25:8, 1339-1362.
- Bagozzi, R.P., F.D. Davis, and P.R. Warshaw, "Development and a test of a theory of technological learning and usage," *Human Relations*, 1992, 45:7, 659-686.
- Bagozzi, R.P. and P.R. Warshaw, "Trying to consume: pursuit of goals in consumer behavior," *Journal of Consumer Research*, 1990. 17:2, 127-141.
- Barclay, D., Thompson, R., and C. Higgins, "The partial least squares (PLS) approach to causal modeling: Personal computer adoption and use," *Technology Studies*, 1995, 2:2, 285-309.
- Boles, J.S., Howard, W.G., and H.H. Donofrio, "An investigation into the inter-relationships of work-family conflict, family-work conflict and work satisfaction," *Journal of Managerial Issues*, 2001, 13:3, 376-391.
- Boyar, S.L., C.P. Maertz, Jr., and A.W. Pearson, "The effects of work-family conflict and family-work conflict on nonattendance behaviors," *Journal of Business Research*, 2005, 58:7, 919-925.
- Breaugh, J., "The measurement of work autonomy," *Human Relations*, 1985, 38:6, 551-570.
- Chin, W.W., "The partial least squares approach for structural equation modeling," In *Modern Methods for Business Research*, Marcoulides, G.A. (ed.), Lawrence Erlbaum Associates. Mahwah: New Jersey, 1998, 295-336.
- Chin, W. W., B. L. Marcolin, and P. R. Newsted, P. R. "A partial least squares latent variable modeling approach for measuring interaction effects: results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study," *Information Systems Research*, 14:2, 2003, 189-217.
- Ciborra, C.U. "From thinking to tinkering: the grassroots of strategic information systems," In *Proceedings of the 12th International Conference on Information Systems*, J.I. DeGross, I Benbasat, G DeSanctis, and C.M. Beath (Eds.) New York, 1991, 283-291.
- Claessens, B., W. Ven Eerde, C. G. Rutte, and R. A. Roe, "Planning behavior and perceived control of time at work," *Journal of Organizational Behavior*, 2004, 25:8, 937-950.
- Eagle, B.W., M. L. Icenogle, J. D. Maes, and E. W. Miles, "The importance of employee demographic profiles for understanding experiences of work-family inter-role conflicts," *Journal of Social Psychology*, 1998, 138:6, 690-709.
- Fichman, R.G., "The diffusion and assimilation of innovation technology innovations" In *Framing the Domains of IT Management*, Zmud, R. W. (ed.), Pinnaflex Educational Resources, Inc., Cincinnati, OH, 2000, 105-128.
- Fishbein, M. and I. Ajzen. (eds.), *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Reading, MA: Addison-Wesley, 1975.

- Foley, S., H. Ngo, and S. Lui, "The effects of work stressors, perceived organizational support, and gender on work-family conflict in Hong Kong," *Asia Pacific Journal of Management*, 2005, 22:3, 237-256.
- Fornell, C. and D. Larcker, "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research*, 1981, 18, 39-50.
- Gajendran, R.S. and D.A. Harrison, "The good, the bad and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences," *Journal of applied Psychology*, 2007, 92:6, 1524-1541.
- Gefen, D. and D. Straub, "Gender differences in the perception and use of e-mail: An extension to the technology acceptance," *MIS Quarterly*, 1997, 21:4, 389-200.
- Gerbing, D.W. and J. C. Anderson, "An updated paradigm for scale development incorporating unidimensionality and its assessment," *Journal of Marketing Research*, 1988, 25:2, 186-192.
- Googins, B.K., *Work/Family Conflicts: Private Lives – Public Responses*. 1991, New York, New York: Auburn House.
- Grandey, A., B. Cordeiro, and A. Crouter, "A longitudinal and multi-source test of the work-family conflict and job satisfaction relationship," *Journal of Occupational and Organizational Psychology*, 2005, 78:3, 305-323.
- Gutek, B.A., S. Searle, and L. Klepa, "Rational versus gender role explanations for work-family conflict," *Journal of Applied Psychology*, 1991, 76:4, 560-568.
- Hackman, J. and G. Oldham, (eds.) *Work Redesign*, Addison-Wesley, Reading, MA, 1975.
- Hamel, G., "The challenge today: changing the rules of the games," *Business Strategy Review*, 1998, 9:2, 19-26.
- Hair, J.F., R.L. Tatham, R.E. Anderson, and W.C. Black, *Multivariate Data Analysis*, 1998, Prentice Hall, Upper Saddle River, NJ.
- Hu, X., A.B. Whinston, and H. Zhang, "Hope or hype: On the viability of escrow services as trusted third parties in online auction environments," *Information Systems Research*, 2004, 15:3, 236-249.
- Hupfer, M.E. and B. Detlor, "Gender and web information seeking: A self-concept orientation model," *Journal of the American Society for Information Science & Technology*, 2006, 57:8, 1105-1115.
- Joreskog, K.G. and F. Yang, "Nonlinear structural equation models: The Kenny-Judd model with interaction effects," In Marcoulides, G. and R. Schumaker (eds.), *Advanced Structural Equation Modeling*, Mahwah, N.J.: Lawrence Erlbaum Associates, 1996, 57-87.
- Karasek, R. and T. Theorell (eds.), *Healthy work: Stress, Productivity, and the Reconstruction of Working Life*. New York: Basic Books, 1990.
- Karasek, R.A. "Job demands, job decision latitude, and mental strain: Implications for job redesign," *Administrative Science Quarterly*, 1979, 24:2, 285-308.
- Karimi, J., T. M. Somers, and Y. P. Gupta, "Impact of environmental uncertainty and task characteristics on user satisfaction with data," *Information Systems Research*, 2004, 15:2, 175-193.
- Komiak, Y.X.K. and I. Benbasat, "The effects of personalization and familiarity on trust and adoption of recommendation agents," *MIS Quarterly*, 2006, 30:4, 941-960.
- Krajewski, H. and R. Goffin, "Predicting occupational coping responses: The interactive effect of gender and work stressor context," *Journal of Occupational Health Psychology*, 2005, 10:1, 44-53.
- Lenaghan, J.A., Buda, R. and A.B. Eisner, "An examination of the role of emotional intelligence in work and family conflict," *Journal of Managerial Issues*, 2007, 19:1, 76-94.
- Man, D.C. and S. S. Lam, S.S., "The effects of job complexity and autonomy on cohesiveness in collectivistic and individualistic work groups: A cross-cultural analysis," *Journal of Organizational Behavior*, 2003, 24:8, 979-1001.
- Moore, J.E., "One road to turnover: An examination of work exhaustion in technology professionals," *MIS Quarterly*, 2000, 24:1, 141-158.
- Morgeson, F.P., K. Delaney-Klinger and M. Hemingway, "The importance of job autonomy, cognitive ability, and job-related skill for predicting role breadth and job performance" *Journal of Applied Psychology*, 2005, 90:2, 399-406.
- Nambisan, S., R. Agarwal and M. Tanniru, "Organizational mechanisms for enhancing user innovation in information technology," *MIS Quarterly*, 1999, 23:3, 365-395.

- Netemeyer, R.G., J. S. Boles, and R. McMurrian, "Development and validation of work-family and family-work conflict scales, *Journal of Applied Psychology*, 1996, 81:4, 400-10.
- Netemeyer, R.G., T. Brashear-Alejandro, and J.S. Boles, "A cross-national model of job-related outcomes of work role and family role variables: A retail sales context," *Journal of the Academy of Marketing Science*, 2004, 32:1, 49-60.
- Netemeyer, R.G., J.G. Maxham III, and C. Pullig, "Conflicts in the work-family interface: Links to job stress, customer service employee performance, and customer purchase intent," *Journal of Marketing*, 2005, 69, 130-143.
- Parasuraman, S. and C.A. Simmers, "Type of employment, work-family conflict and well-being: A comparative study," *Journal of Organizational Behavior*, 2001, 22, 551-568.
- Perrewe, P.L. and D. C. Ganster, "The impact of job demands and behavioral control on experienced job stress," *Journal of Organizational Behavior*, 1989, 10:3, 213-229.
- Ramamoorthy, N., P.C. Flood, T. Slattery, and R. Sardesai, "Determinants of innovative work behavior: Development and test of an integrated model." *Creativity and Innovation Management*, 2005, 14:2, 142-150.
- Rogers, E.M. (ed.) *Diffusion of Innovation*, Fifth Edition, New York: Free Press, 2003.
- Sadler-Smith E., G. El-Kot, and M. Leat, "Differentiating work autonomy facets in non-western context," *Journal of Organizational Behavior*, 2003, 24:2, 709-731.
- Sales, S.M., "Some effects of role overload and role underload," *Organizational Behavior and Human Performance*, 1970, 5:6, 592-608.
- Sanchez-Franco, M.J., "Exploring the influence of gender on the web usage via partial least squares," *Behaviour & Information Technology*, 2006, 25:1, 19-36.
- Sayer, L.C., "Gender, time and inequality: Trends in women's and mens' paid work, unpaid work and free time," *Social Forces*, 2005, 84:1, 285-303.
- Singapore Statistics, retrieved June 15, 2007 from <http://www.singstat.gov.sg>.
- Small, S.A. and D. Riley, "Toward a multidimensional assessment of work spillover into family life," *Journal of Marriage and the Family*, 1990, 52:1, 51-61.
- Stone-Romero, E.F., "Moderator variables in research: A review and analysis of conceptual and methodological issues," *Research in Personnel and Human Resources Management*, 1988, 6:2, 191-229.
- Swanson, E.B. and N. C. Ramiller, "Innovating mindfully with information technology," *MIS Quarterly*, 2004, 28:4, 553-583.
- Swanson, E. B., "Information systems innovation among organizations," *Management Science*, 1994, 4:9, 1069-1092.
- Tan, C.T. and J.U. Farley, "The Impact of Cultural Patterns on Cognition and Intention in Singapore," *Journal of Consumer Marketing*, 1987, 13, 540-544.
- Venkatesh, V. and M. G. Morris, "Why don't men ever stop to ask for directions? Gender social influence, and their role in technology acceptance and usage behavior," *MIS Quarterly*, 2000, 24:1, 115-140.
- Venkatesh, V., M. G. Morris, G. B. Davis, and F. D. Davis, "User acceptance of information technology: Toward a unified view," *MIS Quarterly*, 2003, 27:3, 425-478.
- Wasserman, I.M. and M. Richmond-Abbott, M., "Gender and the Internet: Causes of variation in access, level, and scope of use," *Social Science Quarterly*, 2005, 86:1, 252-270.
- Xie, J.L and G. Johns, "Job scope and stress: Can job scope be too high?" *Academy of Management Journal*, 1995, 38:5, 1288-1309.

APPENDIX A. SCALES USED IN THIS STUDY

WORK-FAMILY CONFLICT (Grandey, Cordeiro, and Crouter, 2005)

1. My job keeps me from spending time with my spouse or partner.
2. After work, I am often too tired to do things with my spouse or partner.
3. My working hours interfere with the amount of time I spend with my children.
4. When I get home from work, I often do not have the energy to be a good parent.
5. I spend so much time working that I am unable to get much done at home.
6. When I get home from my job, I do not have the energy to do work around the house.

FAMILY-WORK CONFLICT (Grandey, Cordeiro, and Crouter, 2005)

1. My family makes it hard for me to do my job well.
2. The demands of my family life limit the number of hours I'm able to work.
3. Worrying about what's going on at home makes it difficult for me to do my job.
4. I'm so tired from all the things I have to do at home that it's hard to have the energy to do my job.
5. I am a better worker because of my family life.

QUANTITATIVE OVERLOAD (Ahuja and Thatcher, 2005)

1. The amount of work I am given prevents me from doing my job as well as I would like.
2. It often seems that I have too much work for one person to do.
3. I never have enough time to do what is expected of me at work.

QUALITATIVE OVERLOAD (Ahuja and Thatcher, 2005)

1. To be successful on my job requires more IT skills than I currently have.
2. To be successful on my job requires more abilities than I currently have.
3. My job requires me to do things for which I have insufficient IT training.

AUTONOMY (Sadler-Smith, El-Kot, and Leat, 2003)

1. I am allowed to decide how to go about getting my job done (the method to use)
2. I am able to choose the way to go about my job (the procedures to utilize)
3. I am free to choose the method(s) to use in carrying out my work
4. I have control over the scheduling of my work
5. I have some control over the sequencing of my work activities (when I do what)
6. My job is such that I can decide when to do particular work activities
7. My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others
8. I am able to modify what my job objectives are (what I am supposed to accomplish)
9. I have some control over what I am supposed to accomplish (what my supervisor sees as my job)

TRYING TO INNOVATE (Ahuja and Thatcher, 2005)

1. I try to find new uses of IT.
2. I try to use IT in novel ways.

APPENDIX B. FACTOR ANALYSIS RESULTS (N = 233)

	1	2	3	4	5	6	7
QuanOv1				0.744			
QuanOv2				0.775			
QuanOv3				0.758			
QualOv1						0.731	
QualOv2						0.836	
QualOv3						0.615	
WMA1			0.837				
WMA2			0.862				
WMA3			0.871				
WCA1					0.757		
WCA2					0.836		
WCA3					0.749		
WFC2		0.771					
WFC3		0.730					
WFC4		0.826					
WFC6		0.744					
FWC1	0.772						
FWC2	0.848						
FWC3	0.775						
FWC4	0.687						
T2I1							0.901
T2I2							0.929

Note 1: SPSS was used for factor analysis.

Extraction Method: Principal Components Analysis.

Rotation Method: Varimax

Note 2: For sake of clarity, this table does not contain numbers that are lower than 0.30.

APPENDIX C. AVE AND CORRELATIONS BETWEEN LATENT CONSTRUCTS (FULL SAMPLE)

	Composite Reliability	AVE	Correlations of Constructs						
			1	2	3	4	5	6	7
Quantitative Overload (1)	0.804	0.590	0.768						
Qualitative Overload (2)	0.740	0.508	0.192	0.713					
Work Method Autonomy (3)	0.938	0.834	0.020	0.003	0.913				
Work Criteria Autonomy(4)	0.860	0.671	0.004	0.013	0.280	0.819			
Work Family Conflict (5)	0.847	0.589	0.204	0.073	0.022	0.030	0.768		
Family Work Conflict (6)	0.889	0.668	0.092	0.081	0.084	0.012	0.310	0.817	
Trying to Innovate with IT (7)	0.927	0.864	0.001	0.002	0.058	0.033	0.001	0.015	0.930

Note: Diagonal elements are the square roots of average variance extracted.

APPENDIX C. AVE AND CORRELATIONS BETWEEN LATENT CONSTRUCTS (GENDER)

Female	Composite Reliability	AVE	1	2	3	4	5	6	7
Quantitative Overload (1)	0.769	0.549	0.741						
Qualitative Overload (2)	0.818	0.605	0.285	0.778					
Work Method Autonomy (3)	0.940	0.839	0.007	0.010	0.916				
Work Criteria Autonomy(4)	0.849	0.657	0.001	0.014	0.370	0.811			
Work Family Conflict (5)	0.907	0.771	0.161	0.169	0.052	0.062	0.878		
Family Work Conflict (6)	0.677	0.518	0.042	0.116	0.106	0.046	0.223	0.720	
Trying to Innovate with IT (7)	0.932	0.873	0.003	0.017	0.094	0.097	0.024	0.006	0.934

Male	Composite Reliability	AVE	1	2	3	4	5	6	7
Quantitative Overload (1)	0.671	0.555	0.745						
Qualitative Overload (2)	0.797	0.569	0.154	0.754					
Work Method Autonomy (3)	0.935	0.828	0.028	0.001	0.910				
Work Criteria Autonomy(4)	0.819	0.607	0.010	0.051	0.210	0.779			
Work Family Conflict (5)	0.891	0.672	0.229	0.036	0.008	0.016	0.820		
Family Work Conflict (6)	0.908	0.711	0.122	0.067	0.075	0.004	0.373	0.843	
Trying to Innovate with IT (7)	0.926	0.862	0.001	0.012	0.038	0.013	0.007	0.022	0.928

Note: Diagonal elements are the square roots of average variance extracted.

AUTHORS

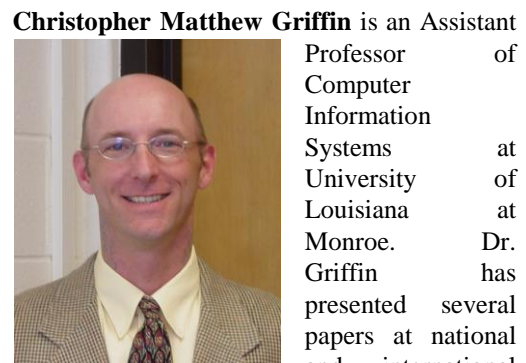


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