

## Voluntary Turnover and Women in IT: A Cognitive Study of Work-Family Balance

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### ABSTRACT

The continued under-representation of women in information technology (IT) professions has been identified as a serious national and international problem. Increased efforts to encourage female participation are needed not only to achieve gender balance, but also as a means of meeting current and future demands for qualified employees (e.g., Panteli, Stack, Atkinson, and Ramsay, 1999). It is not well understood, however, what is causing this phenomenon, and what organizations can do to stop it. One potential explanation may be found in the *quality of work life* theory which is defined as “employee satisfaction with a variety of needs through resources, activities and outcomes stemming from participation in the workplace” (Sirgy, Efraty, Siegel and Lee, 2001, p. 242), and has been found to influence intention to quit (Carter, Pounder, Lawrence, and Wozniak, 1990; Lewellyn and Wibker, 1990). The spillover model of quality of work life (Iverson and Maguire, 2000; Sirgy et al., 2001) further suggests that the satisfaction experienced in one domain (e.g., work) may have a positive or negative effects on the other domain(s) (e.g., family life) and vice versa. When the relationship between work and family is out of balance work-family conflict is said to exist. Ahuja (2002, p.25) states there is, “no [work-family balance] research specifically conducted with IT workers. There is a need for such an examination in the context of IT workers because IT careers, more than most other fields, demand long hours, travel and constant updating of skills” which in turn may contribute to work-family conflict.

The present study examines female IT professionals’ cognitions regarding balancing work and family issues. By focusing on how women in the IT field balance work and family we can give voice to both gender sensitive research and aid organizations in their quest for increased diversity and retaining non-traditional workforces. This paper is one of the first to examine the reciprocal nature of work-family balance in the IT field by taking a cognitive perspective and utilizing a qualitative methodology (revealed causal mapping) to investigate these issues. For this project our goal was to gather knowledge from women in IT and cast it into the spillover model of work-family balance and conflict to construct IT specific interpretations.

For this study, the data source was six focus groups totaling 39 women employed in the IT field, and narratives were gathered from the respondents through open-ended interviews. Because women’s perceptions of their experiences in organizations are dependent on the organizational context, including the firm’s history, industry, and politics (Fagenson, 1990), a case study approach was deemed appropriate for this research. The focal organization is a Fortune 500 manufacturing organization employing over 120,000 people in 22 states and countries. The “average” participant worked in IT for eight years, with 54% having worked in IT five years or less. Some of the participants were single, some had grown children, some had new or impending children, and some were right in the middle of parenting. The women discussed several open-ended questions of relevance to the current study. For example, one of the questions was: “What challenges do you think women in IT face that their male peers do not?” Based on the answers to the question, follow up probes were used to elicit further details regarding the respondents’ experiences. Audiotapes made during the focus group sessions allowed for the verbatim transcription of the discussions into a document format.

The creation of causal maps allows the researcher to capture the cognitive structure of an individual or group by representing how domain knowledge is linked in her (their) mind (Carley and Palmquist, 1992; Eden, Ackerman, and Cropper, 1992). The causal mapping approach has previously been detailed in Riemenschneider, Armstrong, Allen and Reid (2004) and is based on the process developed by Nelson, Nadkarni, Naryanan, and Ghods (2000) and Narayanan and Fahey (1990). The first task in deriving the maps is to identify the causal statements from the interview transcripts (Axelrod, 1976). The causal statements identified were then separated into ‘causes’ and ‘effects’ to construct the ‘raw causal maps’ (Nelson et al., 2000). In a separate process, the relevant concepts were identified from the participants’ statements (Narayanan and Fahey, 1990). The concepts were grouped and then examined for theoretical or logical relevance based on extant literature and were placed in categories. The categories that emerged were supported by studies in the management and information technology

literatures (e.g., Griffeth and Hom, 2001; Griffeth, Hom, and Gaertner, 2000), and in turn reinforced the coding categories' conceptual validity. Once the coding scheme was completed, the causal statements for each respondent were placed into the appropriate conceptual categories. This resulted in a revealed causal map for each of the six focus groups. The individual maps were then aggregated (Axelrod, 1976; Bougon et al., 1977; Nadkarni and Nah, 2003). The second task in causal mapping is to analyze the maps that have been evoked. The analysis of the maps was based on past research in causal mapping (e.g., Nelson et al., 2000). There are two aspects of analyzing a causal map: the content and the structure. The content analysis consists of identifying and defining the concepts contained within the domain under study (e.g., *Work Stress, Managing Family Responsibilities*). The structural analysis consists of analyzing the linkages between the concepts in a map (e.g., *Managing Family Responsibilities causes Work Stress*).

After the maps have been constructed patterns of linkages may emerge. One of these patterns is a loop or cycle. A relationship between two concepts is said to be positive if an increase in the cause concept is accompanied by an increase in the effect concept. Conversely, a relationship between two concepts is said to be negative if an increase in the cause concept is accompanied by a decrease in the effect concept. Loops with an even number of negative relationships or no negative relationships are known as positive, reinforcing, or 'vicious cycles' (Axelrod, 1976; Masuch, 1985; Weick, 1979). This means that an increase [decrease] in the value of one variable will lead to increases [decreases] in the values of the other variables. This type of loop moves away from equilibrium. In contrast, loops with an odd number of negative relationships are known as negative, deviation dampening, or balancing cycles (Maruyama, 1963; Masuch, 1985; Weick, 1979). This means that an increase [decrease] in the value of one variable will lead to decreases [increases] in the values of the other variables. This type of system resists change and keeps coming back to equilibrium.

When analyzing the maps it was discovered that three loops were evoked from the participants, all with positive components, thus making each a deviation amplifying loop, or vicious cycle. The direction of the relationships presented here (positive) was based solely on the data from the focus groups. The loops found in the causal maps indicate that a woman's family responsibilities cause the need for a flexible work schedule, but our data suggests that flextime, more specifically having to "make up" time missed from work, creates stress for women. In this organization there were no institutional policies regarding flextime or reduced schedules, so any modifications to work hours were negotiated between the individual and her manager on an ad hoc basis. In terms of work-family balance, one method of changing the linkages between concepts may be by providing women with a greater sense of control (i.e., the belief that one can exert influence over the environment), which has been found to lead to decreased stress (Ganster and Fusilier, 1989) and lower work-family conflict (Thomas and Ganster, 1995). Thus while ad hoc flextime increased the women's work stress, perhaps the perception of control achieved through a formal flextime program could decrease work stress, and aid balancing work and family responsibilities through changing the linkages between work, family and stress.

The IT field presents a unique context because it is a distinct occupational group, whose members have a high need for challenging work (Couger and Zawacki 1978; Wynekoop and Walz, 1998). In addition, the IT field is project-oriented with rapid technology changes that make skills quickly obsolete. Thus IT workers need and want to learn new skills and challenge themselves to meet their own needs and maintain their marketability. This appears to be another side of the work-family balance issue not frequently addressed—the very job qualities that are desirable to an IT worker cause work stress, which adds to the challenges of managing family responsibilities. The increased importance or attractiveness of job qualities also places an increased importance on the need for flexibility in the woman's schedule. This increase in the need for a flexible work schedule increases the work stress women face and in turn increases the pressure of effectively handling family responsibilities.

Lastly, we found that family responsibilities did not cause stress; only work responsibilities caused stress. This finding may be explained using Cinamon and Rich's (2002) argument that from a women's perspective if the family interferes with work, it is troublesome but natural, whereas if work interferes with family responsibilities it is seen as less appropriate and is more likely to be perceived as a conflict that creates stress. This research extends previous findings by demonstrating that work-family conflict is not just an isolated reciprocal concept within the work and family domains but part of a larger interconnected system that also directly involves work stress and work scheduling issues. By looking at the loops within the model we can see what concepts contribute to the work stress and conflict experienced by women in the IT field and how these contribute to voluntary turnover. Organizations may use these insights to mitigate voluntary turnover and increase diversity by addressing female IT professionals' concerns regarding work-family balance issues.

References available upon request from the first author.