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Midcareer Women Leaving Information Technology: An Examination of the Phenomenon

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Walden University

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Susan Way

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Walden University
2015

Abstract

Midcareer Women Leaving Information Technology:

An Examination of the Phenomenon

by

Susan Fransen Way

MSDD, University of St. Thomas, 1995

BS, St. Cloud State University, 1983

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Organizational Psychology

Walden University

February 2015

Abstract

Midcareer women are leaving the information technology (IT) career field at a much higher rate than are men. This attrition has contributed to a decreasing percentage of women in the IT field, hindering the creativity, innovation, and productivity that can result from a diverse workforce. This phenomenological study addressed a gap in the current research by examining the lived experience of women who have left the IT field. The conceptual frameworks of the study included Rhodes and Doering's integrated career change model based on traditional turnover theory, a model of gender and power in careers by Ragins and Sundstrom, and a career commitment model from Fu that accommodates the unique occupational culture of IT. The research questions explored the experiences, thoughts, and feelings that led these women to leave the IT profession after gaining years of experience. Participants were interviewed using a researcher-designed interview instrument and data were analyzed using a priori codes derived from the conceptual framework and literature review to guide analysis, assisted by software designed for this purpose. The main themes emerging from this study included: negative aspects of the IT culture and organizational climate, challenges of work/life balance, and gender bias and discrimination. The social change implications of knowledge gained through this study include positive changes in the experience of midcareer women in IT, improved retention of midcareer women in IT in corporations and government, and the increased productivity and innovation that is possible with a fully staffed and more diverse workforce.

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Dedication

I dedicate this work to my daughter, Raine Ruthanne Way, who at age 12 has never known me as other than a student. It is my hope that I have shown her what can be achieved through persistence and a love of learning.

Acknowledgments

I would like to acknowledge the guidance of Dr. Linda Whingter, without whose assistance this work would not have been possible.

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Chapter 1: Introduction to the Study

Background

Information technology (IT) is a growing field that is critical to the functioning of organizations (Guzman, Stam, & Stanton, 2008) and important to the global competitiveness of U.S. business and government (Wentling & Thomas, 2009). To stay competitive in this global marketplace, U.S. companies are expected to expand their use of technology, requiring more IT workers (DuBow, 2011) and increasing career opportunity in IT. The U.S. Bureau of Labor Statistics projected that by 2018, there will be nearly 1.4 million computing-related jobs added in the United States, an increase of 22% from 2008 (DuBow, 2011).

Despite this growing opportunity in the field, the number of people choosing to enter IT has been dropping since 2001 (Guzman & Stanton, 2009). If this downward trend continues, U.S. college graduates with computing degrees will fill less than one-third of the open computing jobs predicted by 2018 (NCWIT, 2011). The decrease in choice of computer science as a field of study is especially apparent among women. In 2009 in the United States, women earned 57% of all undergraduate degrees, according to the U.S. Department of Education (DuBow, 2011); but, women accounted for just 12% of all bachelor's degrees awarded in computer science and computer engineering (NCWIT, 2011).

Women have made gains in participation in other scientific and technical fields, but the numbers of women in IT continue to fall (Vegso, 2008). At the same time that fewer young people are choosing this career field, experienced professionals are leaving,

with women 2.5 times as likely to leave the field as men (Wardell, Sawyer, Reagor, & Mitory, 2006). A majority, 56%, of experienced women in IT leave their corporate IT jobs (Hewlett, Luce, Servon, Sherbin, Shiller, Sosnovich, & Sumberg, 2008). The result of these trends is that women now make up only 25% of the IT workforce (DuBow, 2011; Wentling & Thomas, 2009). While the number and percentage of women in the workplace overall is rising, with women now 47% of the entire workforce and 56% of the professional workforce, the number of women in IT is steadily falling (Wardell, Sawyer, Reagor, & Mitory, 2006).

So few women in the IT workforce means loss of opportunity for individual women, since IT professionals made a median annual salary of between \$69,000 and \$90,500 in 2010 (U.S. Bureau of Labor Statistics, 2012), and with the demand for skilled professionals increasing, salaries are expected to remain high. Corporations and government also experience a loss of opportunity from a less than diverse workforce, as diversity in a workforce has been shown to result in increased innovation and creativity (DuBow, 2011; Mannix & Neale, 2005). Organizations with gender diversity have been shown to have higher sales revenue, more customers, and greater relative profits (Herring, 2009).

In 2010, the U.S. Census Bureau showed that virtually the same number of men and women, 35%, used computers at work. Venkatesh and Morris (2000) found evidence of gender differences in the acceptance of new computer systems at work. Men and women were shown to have different perceptions of usefulness and ease of use of new

systems. Companies may risk not meeting the needs of many of the users of their products because of limited female input into technology development.

The phenomenon of experienced women leaving IT is contributing to unfilled IT positions in corporations, causing loss of productivity and opportunity (Allen, Armstrong, Hewlett, Riemenschneider, & Reid, 2006) and the added costs of employee turnover. Women have been shown to be leaving IT at a rate of 250% that of men (Wardell, Sawyer, Mitroy, & Reagor, 2006). Numbers have shown a sharp increase in attrition of women after approximately 10 years of experience in the field (Hewlett et al., 2008). Hewlett et al. referred to this phenomenon as a *brain drain* as experienced female IT professionals are leaving and taking their knowledge with them.

Based on the predicted large increase in need for skilled IT workers, all prospective talent will be needed to meet the demand. As corporations and government struggle to meet their demand for skilled IT professionals, they will not be able to afford to leave out women, who make up the majority of the professional United States workforce (U.S. Department of Labor Statistics, 2011).

Reasons for the decline in number of young women choosing an IT career have been studied extensively, and current literature points to barriers, social influences, and individual differences (Adya & Kaiser, 2005; Papastergiou, 2008; Rosenbloom, Ask, Dupont, & Coder, 2008; Trauth, Quesenberry, & Haiyan Huang, 2008). What remains unclear, however, is an understanding of the experience of midcareer women that leads them to choose to leave the IT profession after investing years of education and gaining years of experience in the field.

Much of the current literature concerning midcareer women and IT portrayed the experiences of women who were currently employed in the IT field (Guthrie, Soe, & Yakura, 2004; Trauth, Quesenberry, & Haiyan Huang, 2009). There was a deficiency in the literature of studies that explored the experience of women who had chosen to no longer work in IT (Quesenberry, Trauth, & Morgan, 2006). This phenomenological, qualitative study was concerned with understanding the experience of midcareer women leaving IT and included the examination of lived experiences of selected participants who had made the choice to leave the field. Experiences examined included individual factors such as career interests and abilities, interpersonal aspects such as the absence of role models and mentors for women in the workplace, societal forces such as gender expectations and family situation and how they affect working life, and organizational factors such as the unique occupational culture of IT, and organizational climate and culture.

The social change implications of this research include informing individuals, corporations, and government about the experience of midcareer women who leave IT. This research may drive positive change by contributing knowledge that could aid corporations and government in policy development to aid in the retention of educated and experienced female IT employees, leading to the increased innovation and productivity that comes from an adequately large and diverse workforce (DuBow, 2011), thus increasing the global competitiveness of U.S. businesses and government.

In this chapter, I will briefly discuss the current empirical literature on the topic of midcareer women in IT and identify a gap in that research. Little research on career

leaving among midcareer women in IT has included the experience of women who had actually made the choice to leave. In this study, I addressed this gap by means of a phenomenological study of career leaving among midcareer female IT professionals who have left the field.

In this chapter, I will define the problem addressed and the purpose of this study. I will specify the research questions to fulfill the purpose of this study, introduce the conceptual framework for this study, explain how that framework relates to this study, and explain the rationale for choosing the phenomenological qualitative research tradition along with the scope and limitations of the study.

Recent Literature

Researchers recently have explored several areas of influence on midcareer women's experience in IT. Studies have covered individual factors such as career interests and abilities (Rosenbloom, et al., 2007; Su, Rounds, & Armstrong, 2009; Trauth, Quesenberry, & Morgan, 2004), interpersonal aspects such as the absence of role models and mentors for women in the workplace (Logan & Crump, 2007), social forces such as gender expectations and family situation and how they affect working life (Armstrong, Riemenschneider, Allen, & Reid, 2007; Quesenberry, Trauth, & Morgan, 2006), and structural factors such as the unique occupational culture of IT, and organizational climate and culture (Guzman, 2009; Soe & Yakura, 2008; Trauth, Quesenberry, & Haiyan Huang, 2009).

In the majority of the current literature on women's experience in IT researchers have focused on women in several different phases of their careers in IT but have rarely

included women who have left the IT field (Quesenberry, Trauth, & Morgan, 2006; Trauth, Quesenberry, & Haiyan Huang, 2009). Hewlett et al. (2008) conducted a study with participants who had left the IT field, including women in science and engineering fields. Women who are midcareer, who worked in the IT field for more than 5 years, and who have left the IT field have not been heard in order to understand their unique experiences that led to their leaving. This study addressed this gap and made meaning of the lived experiences that the participants perceived as factors that contributed to their leaving IT.

Midcareer women leaving the IT profession is an emerging problem for corporations and government in the United States who are beginning to experience a shortage of qualified IT professionals to meet the rising need for technology. Declining numbers of women in the IT profession limits the human resources available to meet needs and decreases the creativity and productivity possible from a full and diverse workforce. There is a need for studies exploring why women are leaving the IT profession after more than 5 years in their career.

Problem Statement

The problem I addressed in this study was midcareer women's choosing to leave the IT profession after years in their IT career. The loss of midcareer women from IT continues to mean a significant loss of opportunity for individuals, society, U.S. corporations, and government. Although previous researchers have suggested factors that contribute to dissatisfaction of women still in IT, there is a scarcity of qualitative research on the experiences that lead women to the decision to leave IT.

The data gathered might be useful to organizations and government in formulating policies that address the experiences leading to the high rate of midcareer women leaving IT and lead to improved retention. The purpose of this qualitative study was to examine lived experiences, as perceived by midcareer women who have experienced leaving IT.

Research Questions

To describe the experience of midcareer women leaving IT, in this study I used a phenomenological, qualitative method as explained by Creswell (2007) and Moustakas (1994). I conducted in-depth interviews with women who have experienced the phenomenon to explore factors that may have influenced their choice. Areas included in these interviews were individual, interpersonal, social, and occupational/organizational factors related to the experience of leaving IT.

The following research questions guided the study:

1. What are the experiences, thoughts, and feelings that lead some women to leave the IT profession after gaining years of experience?
2. What individual, interpersonal, or social situations influenced or affected their experience of leaving IT?
3. How did occupational or organizational culture influence or affect their experience of leaving IT?

Conceptual Framework

Models that provided a framework for this study included Rhodes and Doering's (1983) integrated career change model based on traditional turnover theory; a model of

gender and power in careers (Ragins & Sundstrom, 1989); and a career commitment model from Fu (2010) that accommodates the unique occupational culture of IT.

Rhodes and Doering (1983) proposed a model of career change derived from the turnover model of Mobley, Horner, and Hollingsworth (1978) with organizational, personal, and environmental factors integrated into a more complete model of career change. In this model, several determinants of job and career satisfaction are evaluated, then the process of evaluation of options occurs, and depending on the resulting job or career satisfaction level, the withdrawal process may be followed (Rhodes & Doering, 1983). This model acknowledges gender as a personal factor, but does not integrate gender differences in organizational or environmental factors.

Ragins and Sundstrom's (1989) model of gender and power in organizations takes into account individual, interpersonal, societal, and organizational factors in understanding the influence of gender on power in different career stages. Ragins and Sundstrom (1989) defined individual factors to include a person's demographic background, personality style or traits, and the skills an individual brings to his or her work. Interpersonal factors refer to relationships between people in the organization according to position, or perceived position. Perception of power can be influenced by gender stereotypes, prototypes, and attributions of behavior, according to Ragins and Sundstrom (1989). Work relationships such as mentors and networks are also considered to be interpersonal factors.

Organizational factors include promotional opportunities such as performance appraisal, selection and tracking, and training (Ragins & Sundstrom, 1989). Selection and

tracking refers to job assignments given that can influence experience gained and visibility within an organization.

Ragins and Sundstrom (1989) suggested that an individual operates within interpersonal relationships that occur in organizations, which are ultimately influenced by societal pressures. All of these levels of influence interact, and in order to derive the meaning of lived experiences of people at work, factors at all levels need to be explored.

Fu's (2010) model of career commitment was specifically developed to represent the unique influences of IT on career commitment and career change. Fu began with the investment model based on interdependence theory originally proposed by Kelley and Thiabaut (1978). This model includes career satisfaction, availability of career alternatives, and career investment. Fu's (2010) expanded investment model adds the factors of professional self-efficacy and threat of professional obsolescence, which have been shown to be factors relevant to career commitment and career change among IT employees but not among non-IT employees.

These models and their inclusion of individual, interpersonal, societal, and organization influences, along with influences based on gender and the IT occupational culture, offer a structure to find similarities in women's lived experiences in leaving IT. In this study, I used this framework for a model in gathering data to describe the experience explored. In Chapter 2, I will more thoroughly explain the models that make up this conceptual framework.

Nature of the Study

I completed a qualitative, phenomenological study for this research. According to Creswell (2007), a qualitative approach allows a researcher to study interactions between people in contexts such as work. Also according to Creswell, this approach may capture gender differences that may not be revealed by using existing measures. When inadequate theories exist to describe a certain population, a qualitative approach is appropriate (Creswell, 2007). Qualitative research is appropriate when the context of the experience and the participants' interpretation of the experience being examined are important to the understanding of the phenomenon (Bachiochi & Weiner, 2004). Phenomenology allows a researcher to gain an understanding of the essence of the meaning of lived experiences or factors. Specifically, this study was concerned with examining the factors that resulted in participants (viz., former employees) leaving IT by examining the experiences of participants who have lived this choice.

Locke and Golden-Biddle (2004) introduced several phenomenological paradigms that have more recently developed in the qualitative research field. The interpretive paradigm these researchers describe is helpful "in understanding the day-to-day world of lived experience from the perspective of those who live it" (p. 105). According to Locke and Golden-Biddle, the interpretive paradigm does not expect the researcher to be removed from, but to engage with participants. This paradigm is appropriate "to investigate the different constructions and meanings that situated people make of life at work and how those meanings influence behavior" (p. 105). Creswell (2007) also addressed this recent approach to qualitative research and described this

paradigm in combination with social constructivism as relying on participants' views of their experiences. Creswell suggested that a researcher's own background will shape his or her interpretation of the meanings of others. Van Manen (1990) stated that researchers should explicitly recognize their own biases and assumptions and look to reveal their shortcomings.

Creswell (2007) estimated from 5 to 25 participants are necessary to reach saturation in a phenomenological study. In my study, I interviewed participants who are midcareer women who left IT until data saturation was achieved. I interviewed participants using a researcher-designed interview guide reflecting the research questions. I analyzed data gathered through the interviews according to the interpretive phenomenological approach as described by researchers such as Moustakas (1994), van Manen (1990), and Saldana (2009).

Definition

Information technology (IT), for the sake of this study, was limited to professional IT positions identified by the Bureau of Labor Statistics (U.S. Department of Labor, 2011). These positions include computer systems analysts, computer programmers, software developers, applications and systems software, web developers, computer support specialists, database administrators, network and computer systems administrators, computer network architects, and other professional level computer occupations.

Assumptions

The following assumptions were made during the course of this study:

1. The participants of this study did not hold a position in IT during the time of the study.
2. The participants in this study were former IT professionals and were willing to share their experiences, thoughts, and feelings.
3. The participants in this study honestly presented their experiences concerning their career change decisions.
4. Any former professional relationships, such as working at the same employer or attending the same college, between researcher and participant were incidental and did not influence the responses of the participants or the outcome of the study.

Scope and Delimitations

This study was delimited to women who have completed postsecondary education in a technology related major, either associate or bachelor level, and who have worked in IT positions for more than 5 years. Their previous positions in IT may have included work as an employee of a corporation or government agency, an employee of a consulting company, or as an independent consultant. Their work included professional IT positions as defined earlier. These women may at the time of the study have been working in any other field outside of IT, or not be working for pay in any field. Women who have had more than 5 years of experience in the field were chosen based on current research that shows women's experience of their IT career changes within approximately 10 years of work experience (Hewlett et al., 2008).

I chose participants who most matched the criteria and conducted either in-person or phone interviews based on location. A small size of 5 to 25 participants was a delimitation of this research study. A small sample size may allow for a more in-depth investigation of participants' lived experiences that precipitated a decision to leave IT. A common approach to minimize this limitation is to continue seeking and interviewing participants until repetition, or saturation, is reached in the information being shared (Creswell, 2007; Marshall, 1996). Strauss and Corbin (1990) described saturation as when three criteria have been met: no new data is emerging, category development is dense, and relationships between categories are clearly defined. I sought participants, and the final number depended on when saturation was reached.

Limitations

The research design and method for this study was qualitative and phenomenological due to the nature of the research questions. Qualitative research allows for interviews with open-ended questions meant to enable participants to share more personal and in-depth experience. Qualitative research allows for one or more in-depth interviews. In this study, I interviewed each participant once, resulting in a potential limitation. I did not employ other forms of qualitative data collection, such as observations or reviewing documents.

I used nonprobability sampling procedures for this qualitative study. Criterion sampling means participants would be chosen based on meeting specific criteria. In this case, the criteria were women who have worked in the defined professional IT roles for a minimum length of time and who are now not working in the IT field. I also used

snowball or chain sampling, as described by Creswell (2007), because this study required interviewing people with similar experiences and backgrounds. In snowball sampling, one participant may refer another person she knows to fit the criteria. Snowball sampling is a typical sampling method when attempting to reach participants who no longer are reachable through professional connections or organizations.

These sampling criteria were intended to clarify the lived experience being studied but may limit the generalizability of the results. Creswell (2007) stated, however, that the intent of a phenomenological study is not to generalize, but to understand the specifics of the phenomenon studied.

Significance

The potential contributions of this study include adding to the body of knowledge leading to an understanding of the phenomenon of midcareer women leaving IT. The majority of the current literature examining the experience of women in IT has explored the experiences of women currently employed in the field. This study examined the experience of midcareer women who have left IT.

An increased understanding of the experience of midcareer women who have left IT could lead to changes in practice and policy in U.S. corporations and government agencies that employ IT professionals to aid in the retention of women in IT. In turn, retention may increase the abundance and diversity of skilled professionals needed to ensure U.S. corporations and government remain productive and competitive.

The social change implications include informed organizational and government policy development leading to positive changes in the experience of midcareer women in

IT, improved retention of midcareer women in IT in corporations and government, and the increased productivity and innovation that is possible with a fully staffed and more diverse workforce that could lead to increased global competitiveness.

Summary

Research is needed if U.S. corporations are to design effective policies to reduce attrition of midcareer women in IT. This study contributes to the current literature examining the experience of midcareer women who have left IT. U.S. corporations and government could benefit from an increased understanding of this phenomenon to inform their practices and policies with the intent to increase retention of their experienced midcareer female IT staff.

Positive social change may be possible through an increased level of understanding of this phenomenon, in the increased innovation and productivity that is possible from an adequately large and diverse workforce (DuBow, 2011), allowing for increased global competitiveness of U.S. businesses and government. In Chapter 2, I will provide an extensive review of the current literature examining the experience of women in IT. This section will also compare and contrast current literature and introduce themes.

Chapter 2: Literature Review

Introduction

Chapter 1 served as an introduction to this qualitative study. The literature review presented in this chapter provides relevant background information from previous research about the experience of women in IT and potential factors that may lead women to decide to leave the IT field. Also covered are theories and models that provide a conceptual framework to this study. This literature review revealed a gap in the current research that will be discussed.

Although there has been a lack of substantial research done on questions of gender and IT until recently (Adam, Howcroft, & Richardson, 2004), women are getting increased attention from researchers since it has been shown that women are two and a half times more likely than men to leave the field (Wardell, Sawyer, Mitory, & Reagor, 2006). Researchers have examined several potential causes for this phenomenon, ranging from individual and social factors (Rosenbloom, Ash, Dupont, & Coder, 2008; Trauth, Quesenberry, & Morgan, 2004) to occupational and organizational culture characteristics (Fu, 2010; Guzman & Stanton, 2009; Wentling & Thomas, 2009).

Recent research has shown that personal, interpersonal, societal, occupational, and organizational factors affect how a woman in IT experiences her working life (Soe & Yakura, 2008; Trauth, Quesenberry, & Huang, 2009). The factors reviewed from the current literature include the individual characteristics of occupational personality and personal preferences. Research on the importance of interpersonal relationships including mentor relationships and role models will be included. Studies examining social

influences including gender roles, work–family balance, and potential gender bias and discrimination will be covered. Research exploring the unique occupational culture of IT and how this may affect an individual’s occupational persistence will be included. Finally, studies covering aspects of organizational culture as to their influence on women’s careers in IT are discussed. In this literature review, I compare, contrast, and evaluate the current research concerning women’s experiences in the IT field and clarify the gap in the current literature that this study addressed.

This literature review focuses on theories present in current research with the goal both to integrate views in the current literature and also to identify weaknesses in the current literature. This chapter is organized conceptually, by personal, interpersonal, societal, and occupational and organizational factors. The intended audience for this literature review is both the reviewers of this dissertation and scholars within the field.

The strategy used to identify relevant literature included using electronic databases such as Business Source Complete, Computers & Applied Sciences Complete, PsychArticles, and PsychInfo. Conference papers and peer–reviewed articles available through the Association of Computing Machinery (ACM) were also included. I chose articles based on their relationship to topics such as gender and information technology, and women and IT careers. Search terms used included *women and information technology* and *gender and information technology* along with terms such as *occupational personality*, *occupational culture*, and *organizational culture*. I used each search term in all databases.

Conceptual Framework

This discussion of the models that provided a conceptual framework for this study begins with an integrated career change model proposed by Rhodes and Doering (1983) that was developed based on traditional turnover theory. Next, a model of gender influences on power during the span of a career (Ragins & Sundstrom, 1989) provides an additional framework addressing the differences in career experiences based on gender. I also included Fu's (2010) model that accommodates the unique occupational culture of IT and how that culture affects career commitment in the framework. Fu's model is based on an investment model from the interdependence theory originally proposed by Kelley and Thiabaut (1978).

Rhodes and Doering (1983) proposed a model that was derived from previous career change and turnover theory integrated into a more complete model of career change. Previous theory was not comprehensive, according to Rhodes and Doering (1983). For instance, Holland's (1973) theory of congruence had previously been used to understand career change. This study suggested that if a person's work interests were not met in a job or career, career change became more likely. This interest match was referred to as person-work environment congruence (Holland, 1973). This theory, however, was narrow and addressed only a person's interests and not organizational or societal influences on career.

Rhodes and Doering's (1983) integrated model is based on the turnover model of Mobley, Horner, and Hollingsworth (1978), but was expanded to take into account organizational factors, personal factors, and environmental factors. According to this

model, first an employee evaluates several determinants of job and career satisfaction; then the employee evaluates alternative options and depending on these factors, develops an intention to search and begins the withdrawal process (see Figure 1).

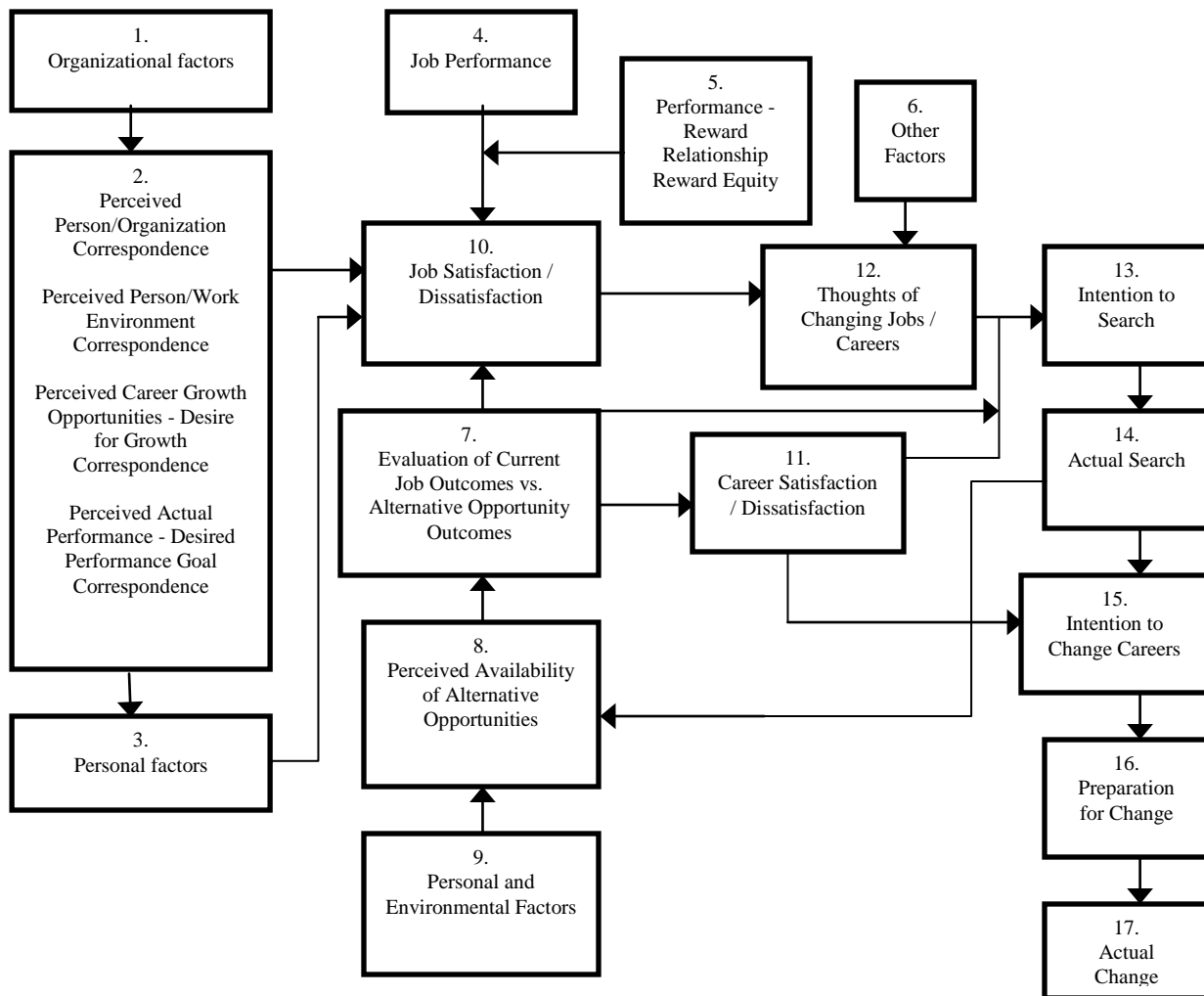


Figure 1. Rhodes and Doering’s integrated model of career change. From “An Integrated Model of Career Change,” by R. Rhodes and M. Doering, 1983, *Academy of Management Review*, 8, p. 633. Reproduced with permission of Academy of Management.

In Rhodes and Doering's (1983) model, Boxes 1 through 9, with the exception of 6, describe the factors that determine a person's job and career satisfaction. These factors include organizational, personal, job performance, and environmental factors and alternative career options. Box 6 refers to other factors out of control of the employee such as layoffs. If the factors in Box 1–9 combine to produce inadequate job satisfaction or career satisfaction, then the employee moves to the next set of withdrawal stages. Rhodes and Doering pointed out that at any phase in this process, the employee could decide that his or her job or career satisfaction level is acceptable based on the lack of other options.

Organizational factors (Box 1), according to Rhodes and Doering (1983), include such things as pay, upward mobility, and the organization's contributions to career growth. Personal factors (Box 3) include age, tenure, gender, education, and career–family role conflict. These factors combine to result in a level of perceived person/work environment correspondence (Holland, 1973), career growth opportunity, and performance goal correspondence. Researchers have shown that the individual's own perceived job performance, or performance goal correspondence, is more important than formal performance ratings from others in career satisfaction (Rhodes & Doering, 1983).

Rhodes and Doering (1983) stated that Box 7, Evaluation of Current Job Outcomes vs. Alternative Opportunity Outcomes, has a basis in Vroom's Expectancy–Valence Theory (as cited in Van Eerde & Thierry, 1996). This theory proposes a model to illustrate a decision–making process based on the person's perception of the

importance, desirability, or anticipated satisfaction with possible outcomes. The model also included the probability to obtain an outcome, and the probability that an action or effort would lead to an outcome (Van Eerde & Thierry, 1996).

Box 8 describes the decision point between current job and alternative opportunities including new jobs, training, or financial support for training for a new job or career. If these resources exist (Box 9) then there is motivation for making a change. The perceived influences on those alternatives include age, perceived performance level, financial status, and labor market conditions.

This integrated career change model strives to be more inclusive than many earlier turnover or career change models. However, a factor that the model touches on but does not fully explain is the effect of gender on the organizational, personal, and environmental factors that influence career choice and change. Gender is mentioned in Box 3–Personal Factors, but more recent research has shown a gender effect on all aspects of job and career experience. Ragins and Sundstrom (1989) proposed a model of gender and power in organizations as a framework to examine individual, interpersonal, organizational, and societal factors in understanding the gender differences in power that influence the experience of women in the workplace.

Ragins and Sundstrom (1989) proposed that societal factors influence all other areas as societal forces affect a woman before she enters the workforce. These researchers identified sex–role socialization as the key process at the societal level of influence. Societal expectations can lead to women choosing careers that are gender stereotyped. Organizations may hire women into female–typed positions or departments,

which then continues the stereotyping of these positions. Sex–role socialization at the individual level can affect career or job choice or lower career aspirations and at the interpersonal level impact role expectations and perceptions.

Organizational factors in this model by Ragins and Sundstrom (1989) were focused on differential selection and tracking. Selection and tracking referred to job assignments given that can benefit employees by experience gained and level of visibility within an organization. When gender influences hiring and promotional decisions, organizations may track women into lower power positions with lower power supervisors. This leads to fewer possible effective mentoring relationships, according to Ragins and Sundstrom. Organizational factors also include promotional opportunities such as performance appraisals and training opportunities (Ragins & Sundstrom, 1989).

Interpersonal key processes are perceptions and role expectations (Ragins & Sundstrom, 1989), both aspects of the relationships between people in the organization according to positions held. Interpersonal factors include perception of power differences by gender, stereotypes, and attributions (Ragins & Sundstrom, 1989). Work relationships such as mentors and networks are also considered to be interpersonal factors. On the individual level, career aspirations and choices are the processes focused on in this model. Ragins and Sundstrom (1989) defined individual factors as including demographic background, personality styles or traits, and skills the individual brings to his or her work.

Ragins and Sundstrom (1989) suggested that an individual operates within interpersonal relationships that occur in occupations within organizations, which are

ultimately influenced by societal pressures. All of these levels of influence interact, and so to derive the meaning of lived experiences of people at work, factors at all levels need to be explored. All levels of Ragins and Sundstrom's (1989) model are intertwined (see Table 1).

Table 1

Ragins and Sundstrom's Model Of Gender And Power In Organizations

	Societal	Organizational	Interpersonal	Individual
Societal (Sex-role socialization)		Fewer qualified female candidates for powerful positions Few female role models	Role behaviors Sex-role socialization Gender-typing of jobs Non-work roles and expectations	Perceived career opportunities Female-typed jobs Non-work family roles
Organizational (Differential selection and tracking)	Sex-typing of positions Recruiters' and raters' sex-role stereotypes Restricted pool of qualified applicants Differential placement and tracking		Role behaviors Recruiters' and raters' employment decisions Differential placement and tracking	Self-selection Entry-level position Advancement decisions Non-work roles Low-position in female-typed departments Career interruptions
Interpersonal (Perceptions and role expectations)	Role expectations Interpersonal perceptions: Stereotypes Prototypes Attributions Differential expectations Exclusion from networks and mentorships	Females clustered in low-power positions in female-typed departments Restricted access to networks & role models Powerless supervisors		Self-selection Lack of networks, coalitions and mentors Role behaviors Differential access to resources Reinforcement of others' role expectations
Individual (Career aspirations and choices)	Self-concept Career aspirations Achievement motivation Non-work roles Gender-typed career choices Role-conflict Career interruptions	Reinforcement of self-perceptions of powerlessness Lowered self-confidence, career aspirations, achievement motivation	Role behaviors aligned with others' expectations Lowered self-confidence, career aspirations	

Note. From Ragins, B.R., & Sundstrom, E. (1989). Gender and power in organizations: a longitudinal perspective. *Psychological Bulletin*, 105, pp. 77–80.

Fu (2010) examined career commitment specifically among IT workers to determine if the IT field presented unique influences on career commitment and career change. Fu's research showed IT workers' career commitment was affected by additional factors not addressed by previously developed models. In developing a model to describe these findings, Fu began with the investment model from Rusbult (1983) that was based on interdependence theory originally proposed by Kelley and Thiabaut (1978).

Interdependence theory (Kelley & Thiabaut, 1978) was developed from the study of interpersonal relationships and suggested that relationships can be characterized both by the level of satisfaction with the relationship and dependence on the relationship. Building on this theory, the investment model by Rusbult (1983) used the concepts of satisfaction with the relationship, the quality of available alternatives, and investment size to predict the level of commitment to an ongoing relationship and the chances of the relationship ending. Rusbult and Farrell (1983) later used this model to explore the effect of these factors on employee turnover. They examined the impact of the balance between job costs and rewards, the level of investment in a job, and the quality of alternatives on employee turnover. Their findings pointed to the importance of the change in these variables, more so than the level, in predicting turnover. Employees who experienced declining reward and increasing costs, declining investment, and improving alternatives were more likely to decide to leave (Rusbult & Farrell, 1983).

Fu (2010) proposed an expanded investment model that attributed career commitment to a combination of career satisfaction, availability of career alternatives, and career investment, with the added factors of professional self-efficacy and threat of

professional obsolescence. The IT field may be unique in the level of need to frequently update skills to remain technically current and employable, according to Fu. This requirement may create a fear of professional obsolescence (Fossum, Arvey, Paradise, & Robbins, 1986) when an employee had the skills and knowledge necessary for the job, but changes occur that make him or her unprepared for the job. A high level of self-efficacy (Bandura, 1977), or the belief by a person that she has the resources and abilities to succeed in her chosen career, may be necessary to counter the threat of professional obsolescence.

Fu's (2010) research showed that for non-IT workers the threat of obsolescence did not affect level of career commitment, while IT workers were shown to have lower career commitment due to a higher level of perceived threat of professional obsolescence. Higher career self-efficacy was also shown to relate to a greater level of career commitment in IT workers, but not in non-IT workers (Fu, 2010).

These models described provide a conceptual framework for understanding the factors and processes involved in career change, including models specifically addressing gender and IT workers. In the following section, I will review current research on these factors and their influence on women in IT.

Individual Factors

Occupational personality. Occupational personality refers to a set of traits that career and vocational counselors have measured for many years to assist people in career selection (Rosenbloom, Ash, Dupont, & Coder, 2008) and can be measured using several instruments. Interest inventories, such as the Strong Interest Inventory based on the work

of Holland (Holland, 1997), are well-accepted tools. The Big Five or five-factor model of personality is also commonly used in career guidance and research (McCrae & Costa, 1991). These models and instruments were developed based on the belief that vocational interests emerge as a child grows into an adult, become stable, and can be measured (Low, Yoon, Roberts, & Rounds, 2005). For example, George, Helson, and John (2011) reviewed five longitudinal studies that examined how these dimensions of personality were related to work for women. These researchers found that personality dimensions determined at age 21 still predicted women's career attainment much later, at age 52.

Holland's (1997) approach involved classifying both people and work environments into six different themes: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC). Holland proposed that a match in themes between a person and chosen career field would be beneficial for both the employee and the organization.

Rosenbloom, Ash, Dupont, and Coder (2008), in a study that examined possible connections between individuals' occupational personality and career choice, found an association between the Holland's *realistic* and *enterprising* themes and the choice of IT as a career. Their data also showed men were 14% more likely to choose IT as a career. One quarter of that 14% difference, or 3.5%, was found to be attributable to the higher incidence of the realistic occupational personality theme in men (Rosenbloom et al., 2008). When gender differences in the realistic theme were accounted for, a quarter of the gender difference in IT as a career choice was explained, according to Rosenbloom and colleagues.

A meta-analysis completed by Su, Rounds, and Armstrong (2009) included results from 29 vocational interest inventories over four decades. These authors also showed that men had a higher incidence of the realistic theme, along with the investigative theme, while women had a higher incidence of artistic, social, and conventional interests. These authors, however, did not show a significant gender difference in the enterprising theme. They suggested that the results of their meta-analysis showed a strong gender-based preference of men for careers involving things and women for careers involving people. From these results, they concluded that science, technology, engineering, and math (STEM) fields would be chosen by people with a stronger interest, as measured by vocational interest inventory, of working with things (Su et al., 2009), and therefore fields like IT would be male-dominated. However, their results did not match the actual participation of women in either science or math, where female participation is noticeably less than their results suggested. And finally, the Su et al. results showed varying levels of gender differences depending on the particular interest inventory being studied, and the item development processes used to create the inventory. Item development between inventories negatively impacted the gender difference shown so that gender differences were reduced to nonsignificant for the enterprising and investigative themes. This leaves open the possibility that other factors besides individual vocational interests are at play (Su et al., 2009).

Low, Yoon, Roberts, and Rounds (2005) found that an individual's interests stabilized quite early in life, and would be influential in college-aged career choice, but would be unlikely to affect career change at a later date. However, given that

occupational personality can be shaped by environmental and societal factors as well as individual characteristics (Rosenbloom et al., 2008; Su et al., 2009), results such as those gained by Su et al. (2009) do not remove the possibility of causes such as social pressure for the differences found.

Interpersonal Factors

Interpersonal supports that may be lacking for women in IT are the presence of role models and mentors, along with involvement in informal networks. Career advancement may be slowed without these supports (Logan & Crump, 2007; Soe & Yakura, 2008; Trauth, Quesenberry, & Huang, 2009). The lack of role models and mentors may create gender isolation at work (Hewlett et al., 2008), which could be a factor in career dissatisfaction among women in technology careers. With few role models, career paths in IT seem “mysterious” and unattainable, according to Hewlett and colleagues.

Mentors. Mentors are trusted advisors whose benefits have long been recognized (Logan & Crump, 2007). Mentor relationships can be formal or informal, within an organization or outside. Even though informal mentoring relationships may be more effective (Logan & Crump, 2007), some organizations create formal mentoring programs. Only 7 of the 68 companies represented in the Logan and Crump study provided formal mentoring programs. These researchers found that a slight majority of women interviewed stated that they had mentors who helped them understand the organizational politics, network effectively, and gain visibility. Most mentors of the participants were male, and the participants did not express that this was an issue. Mentoring may be more

successful when a senior person chooses a younger person to mentor because she or she sees potential in this person instead of being assigned formally (Logan & Crump, 2007), since high-ranking people assigned as mentors in a formal mentoring program may be too busy or not interested in the role.

Guthrie, Soe, and Yakura (2009) found that few formal, organization-sponsored, mentoring programs existed in the varying companies included in their study. Participants more frequently experienced informal mentoring by their first manager, sometimes continuing as they advanced in the company. Informal mentoring was deemed more useful than formal mentoring. Women who were later in their career often had men as mentors.

Trauth, Quesenberry, and Huang (2009) considered mentoring experiences, or the lack of mentoring, to be an individual influence on women's careers. These authors stated that women benefitted most from mentoring early in their career and again that gender of the mentor is not important. The existence of an involved mentor was mentioned as a reason to stay in the field and has been shown to increase retention (Trauth, Quesenberry, and Huang, 2009).

Role models. Ahuja (2002) remarked on the lack of women on boards of directors. Currently, 52% of technology companies have no women on their boards (Perlberg, 2012). Role models are women higher in the organization that inspire a woman's career. Ahuja has proposed that the lack of women in leadership roles in IT negatively affects women's decisions to stay in the field, but there is a lack of recent research addressing this issue.

Social networks. Informal social networks exist in all organizations and are a source of shared information, informal mentoring, and organizational culture building, and participation in these networks can be important to career advancement (Ahuja, 2002). Researchers have long thought that women are excluded from informal but powerful social networks at work for several reasons including working in female-typed positions or departments with female supervisors (Ragins & Sundstrom, 1989).

Social/Societal Factors

Work-family balance. Researchers have extensively studied work-family conflict and its effect on women's career choice and persistence (Allen, Armstrong, Riemenschneider, & Reid, 2006; Quesenberry, Trauth, & Morgan, 2006; Reid, Allen, Armstrong, & Riemenschneider, 2010). Work-family conflict occurs when the dual demands of family life and career cause a negative effect on quality of life. There is some disagreement in the current literature as to how the culture of IT affects work-family balance for women (Ahuja, 2002; Quesenberry, Trauth, & Morgan, 2006). Available technology may allow women the flexibility of working outside the office, but the rapid change in technology and the high expectations of the industry put pressure on IT employees to work long hours and to continuously retrain.

Quesenberry, Trauth, and Morgan (2006) discussed the challenges of women at different stages of their careers. In applying the individual differences theory of gender and IT developed by Trauth, Quesenberry, and Morgan (2004), Quesenberry et al. focused on individual and societal factors in understanding women's experience in IT. They compared issues of women with no children, working parents, and what they called

“back-on-track parents” (p. 46) who came back to IT after raising children. The study included women from all their defined stages except “off-the-track parents” (p. 47) or female IT professionals currently not working in IT. This exclusion of women who had left the IT profession by these authors and others leaves a gap in the current research.

In an extensive study of women working in science, engineering, and technology (SET) fields, Hewlett et al. (2008) discovered that women working in United States technology positions work an average of 62 hours per week and are most likely to be working with both coworkers and clients in multiple time zones. The results of this study agreed though, that technology professionals were also the most likely of the three fields examined to work flexible work schedules.

Armstrong, Riemenschneider, Allen, and Reid (2007) interviewed women in focus groups from the IT department of one organization. From this input, the authors agreed with Quesenberry et al. (2006) and Hewlett et al. (2008) about the challenges women face and made suggestions to organization management to provide flexible times for necessary training, since IT requires continual upgrading of skills, and flexible work schedules, since work requirements may interfere with family needs.

Bias and discrimination. Social bias toward prescribed gender roles can affect levels of work–family conflict as well as how women view their abilities and career options (Ahuja, 2002, p. 22). Gender discrimination has been found to exist in hiring, salaries, and opportunities for promotion (Allen, Armstrong, Riemenschneider, & Reid, 2006) as women in IT receive fewer promotions, are underrepresented in management positions, and are paid less than men of the same experience. Wentling and Thomas

(2009) found that 72% of the women they interviewed noted gender discrimination as a reason for not progressing in their careers.

In examining barriers to women in the IT workplace, Allen, Armstrong, Riemenschneider, and Reid (2006) found both explicitly and implicitly identified barriers to women's career satisfaction and advancement in IT. Explicitly identified barriers included turnover, discrimination, and managing family responsibilities. Concepts that were implicitly identified were promotion barriers, work stress, work schedule flexibility, lack of respect, and ageism. The implicit barriers of lack of respect and ageism had not been previously identified in the literature. Participants in this study described experiencing repeated incidents of being ignored or dismissed lightly in workplace situations such as meetings or interpersonal interactions. Younger women in IT described ageism in that they were not being taken seriously by their colleagues (Allen et al., 2006). These repeated subtle slights and incidences of being ignored or not taken seriously combined over time to create a lack of respect in the workplace.

More recently, Reid, Allen, Armstrong, and Riemenschneider (2010) conducted focus groups of IT professionals separated by gender to explore perceived challenges of women in the field. Thirty-five total challenges were described, but only ten challenges were shared between the men and women's groups and none of the believed causes were the same. The authors suggest that their results showed that men and women have different perceptions of the challenges facing women in IT (Reid et al., 2010). The researchers also found that men view some of these challenges as organizational or industry-based, while women view the challenges as individual and communication

issues. These researchers concluded that little organizational change will occur when male managers have a limited view of the challenges women face and female managers see these issues as personal and not organizational (Reid et al., 2010).

Occupational Factors

Organizational culture. Organizational culture has been studied extensively by researchers, and is described as consisting of a shared set of values, language, beliefs, or expectations within an organization (Roldan, Soe, & Yakura, 2004; Trauth, Quesenberry, & Huang, 2009; Trice & Beyer, 1984). A culture may exist within an occupation, also (Fu, 2010; Guzman, Stam, & Stanton, 2008; Guzman & Stanton, 2009). An occupational culture exists when people working in that occupation have a shared language and set of behaviors independent of the organization they work within. The IT field has developed a unique occupational culture, according to Guzman, Stam, and Stanton (2008), as a similar culture can be found in IT departments across organizations.

Occupational culture of IT. There are several characteristics of IT's occupational culture (Fu, 2010; Guzman, Stam, & Stanton, 2008; Guzman & Stanton, 2009) including the use of technical jargon among those included in the culture, extreme demands for long work hours and continued technical learning, feelings of superiority over the users of systems they support, and a high use of IT in off-work time. These occupational traits were found to occur most frequently in workers having more than five years of experience in IT (Guzman & Stanton, 2009).

Hewlett, et al. (2008) conducted an extensive study of women in science, engineering, and technology (SET) fields. Hewlett and colleagues categorized five

“antigens in SET culture” (p. i) that drove women to leave. These antigens included a male dominated culture where women experience exclusion or harassment, isolation due to lack of role models or sponsors, undefined career paths that leave them feeling “stuck” (p. i), and an environment with extreme work pressures where a majority work across time zones (Hewlett, et al., 2008). An occupational characteristic of IT referred to as the *diving catch* or the willingness to travel at short notice to prevent or fix a system crash was rewarded, while women felt unable or unwilling to engage in this risky behavior. These antigens work against women who, the same study showed, enjoyed their jobs and were performing well. Hewlett, et al. (2008) saw the greatest increase in women leaving the IT field after 10 years of experience.

Wentling and Thomas (2009) examined the current workplace culture of IT and found it to be male dominated, results driven, with high teamwork and accountability. The IT culture revealed did not value diversity, was competitive, challenging, and fast paced, according to Wentling and Thomas. These researchers’ results showed the barriers to women to be the male dominated, competitive, non-diverse, conservative, non-consensual, exclusive, and even hostile or threatening environment. Some of the characteristics found to be positive to women’s career included high teamwork and a results driven culture, high accountability, and challenging people oriented work (Wentling & Thomas, 2009).

Guthrie et al. (2009) also examined what they called *career barriers* and *boosters*. Some of the top career boosters were: client problem solving, understanding company politics, networking, advanced education, a boss or sponsor, and teamwork. Career

barriers mentioned included not “looking right” to have the job or what the researchers called ageism, unclear career paths, keeping current with technology, and family issues Guthrie et al. (2009).

Occupational commitment. Once a person chooses and invests in preparing for an occupation, several factors may influence his or her chances of staying in that career over time. Meyer, Allen, and Smith (1993) discussed affective, continuance, and normative commitment, or staying in an occupation because of emotional attachment, investment, or obligation. These factors combined were found to determine occupational commitment. Guzman and Stanton (2009) studied people new to the IT field to understand the occupational culture of IT and to measure commitment to the occupation of IT. The researchers found that participants who showed enjoyment of continuous learning and integrated IT into their leisure time had an increased affective commitment. Guzman and Stanton also found that male participants reported a higher self-efficacy for the demands of the career and had also integrated IT into their lives to a greater degree, which could have an effect on occupational commitment, according to these researchers.

Fu’s (2010) study of career commitment in IT also showed that the threat of occupational obsolescence, or not keeping technical skills up to date, influences IT employees’ career commitment. This factor then made professional self-efficacy, or the employee’s belief that he or she has the abilities and resources to do the job, a more important trait for IT career persistence.

McKinney, Wilson, Brooks, O’Leary-Kelly, and Hardgrave (2008) agreed that women’s experiences in IT differ from men’s, but disagreed whether women’s

experiences caused a significant difference in occupational commitment. McKinney et al. (2008) found that men showed a higher love of technology, whereas women showed a stronger desire for job security, ease of field entry, and flexible work hours. Gender differences in work experiences included lower confidence and comfort with technology, and lower supervisor support for women.

To measure affective connection, McKinney, Wilson, Brooks, O'Leary-Kelly, and Hardgrave (2008) measured career satisfaction, professional identification, and turnover intention. They found no significant differences in gender in these measurements. From this study, McKinney et al. (2008) concluded that women are not different in their identification with IT and that women's and men's experiences in the IT field were "more alike than different" and that the scarcity of women in IT must be more of an "input problem" than a "throughput problem" (p. 84).

Soe and Yakura (2008) discussed the validity of this pipeline analogy used by some researchers in the field, where barriers and choice create "leakage" in the pipeline, and stated that this analogy may be too rigid and not allow for the variety of influences on career progression. Soe and Yakura (2008) instead proposed examining women's experiences in IT through societal, occupational, and organizational factors.

Organizational Factors

Each organization creates its own organizational culture and climate (Roldan, Soe, & Yakura, 2004; Trauth, Quesenberry, & Huang, 2009; Trice & Beyer, 1984). The distinction between the two is that organizational culture is explicitly condoned by the system it exists within, where organizational climate is the implicit influence of the

system on employees' behavior (Trauth et al., 2009). In recent research, organizational climate has been shown to be linked to retention rates and not to be gender neutral (Roldan et al., 2004).

Organizational culture. When Ragins and Sundstrom (1989) proposed their model of gender and power in organizations, they asserted that women's level of power begins to be determined at entry level, when women enter into positions with lower ranking than men. Soon, they are affected by factors such as a lack of access to information about open positions through informal networks. These researchers stated that organizations' selection and promotion processes can have gender bias, meaning women are offered fewer jobs, or lower salaries, or entry into departments that are mostly women, affecting the employee's power. The main organizational influences, according to Ragins and Sundstrom (1989) are gender differences in performance appraisal, selection for positions, and training. Hewlett et al. (2008) however, found that women in the first years of their career in IT received more positive performance appraisals than men. In their study, 75% of women received positive appraisals compared to 56% of men. It is unclear from current research that differences in performance appraisals, selection, and training opportunities are significant influences on women in IT.

Organizational climate. Soe and Yakura (2008) described how culture affects all units, from families to organizations to nations. These group cultures affect individuals' career decisions and success. Which career fields are perceived as a male versus female is influenced by culture, and the individuals' experiences in male-dominated fields are further cultural influences. The factors that lead an organization to be male-dominated

can cause what is called a *chilly* organizational climate or one that is inhospitable to women (Roldan, Soe, & Yakura, 2004; Soe & Yakura, 2008). What makes a *chilly* climate may include many of the factors shown to exist in the occupational culture of IT. A male dominated culture that rewards risky behavior, expectations of long work hours and last minute critical needs, a constant need to update skills and the expectation that IT will take over non-work hours are some of these (Roldan, Soe, & Yakura, 2004). Though each person may experience these influences differently, an organizational climate non-welcoming to women may lead to higher turnover (Soe & Yakura, 2008).

Personal, interpersonal, social, and organizational factors have been shown to be influences in determining an individual woman's career choice and persistence. Social and cultural biases can affect women's view of their career options, while stereotyping of women's career options and performance can affect a woman's career progression. The structures that make up corporations create occupational and organizational cultures that affect women's work experiences and influence their experience of their work life and the career choices they make.

Summary and Conclusions

In this chapter I reviewed the literature pertaining to the conceptual frameworks that serve to orient and direct the present study of the factors that lead midcareer women to consider and to decide to change careers. The chapter was focused on examining the specific theories and models underlying the present research, including those of Rhodes and Doering (1983), Ragins and Sundstrom (1989), and Fu (2010) in order to connect the concepts of job satisfaction, gender, IT occupational culture, and career change theory.

The majority of current literature in the area of women and IT consisted of research studies using as participants women in different phases of their careers in IT. These studies gathered data from women who were still employed in IT, but did not include women who have left the IT field (Quesenberry et al., 2006; Trauth et al., 2009). This literature review included one study done with participants who had left the IT field (Hewlett et al., 2008), which also included women in science and engineering. There is a gap in the literature in the understanding of the experience of midcareer women who have left the IT field.

By conducting this study, I attempted to address a gap in the current literature by gathering qualitative data from women who have left IT to gain understanding about the experiences that led them to leave the career field. I gathered data through interviews with women who made the decision to leave. I took a phenomenological approach for this qualitative study. The participant selection, method, and instruments used will be further described in Chapter 3.

Chapter 3: Research Method

Introduction

The purpose of this qualitative, phenomenological study was to explore the experience of women who chose to leave the IT profession after more than 5 years of experience in the career field. This study provided conceptually informed qualitative research to gain a better understanding of the lived experiences of these women. In this chapter, I describe the research design and methods used to address the research questions introduced in Chapter 1. The first section describes the research design and rationale for choosing the design and reviews the research questions. I also discuss my role as the researcher. The last sections include a discussion of the study methodology, ethical concerns, and a summary of the chapter.

Research Design and Rationale

In this study, I used a phenomenological, qualitative method to describe the experience of midcareer women leaving IT. I conducted in-depth interviews with women who have experienced the phenomenon being studied to explore factors that influenced their choice. Topics covered during the interviews included individual, interpersonal, social, occupational, and organizational factors experienced by women who left an IT career. The following research questions guided the study:

1. What are the experiences, thoughts, and feelings that lead some women to leave the IT profession after gaining years of experience?
2. What individual, interpersonal, or social situations influenced or affected their experience of leaving IT?

3. How did occupational or organizational culture influence or affect women's experience of leaving IT?

Rationale

Choice of research design is guided by the research topic and questions being addressed (Creswell, 2009). A quantitative study is most appropriate for testing existing theory by collecting numerical data on variables that can be compared, whereas qualitative research is meant to explore the meaning that individuals ascribe to a human or social problem (Creswell, 2009). The intent of this research study was gaining understanding of the experiences of women who have left IT, including their personal stories, their relationships, and their interactions with organizations. This exploration of the nature of persons' experiences in life or work is best suited to a qualitative approach (Creswell, 2009; Strauss & Corbin, 1990).

Research design can be broken down into four basic elements: epistemology, theoretical perspective, methodology, and methods (Crotty, 1998). These elements provide a structure for understanding the research process and identify assumptions used in performing a research study.

Crotty (1998) described epistemology as a "theory of knowledge" (p. 3) that defines what kind of knowledge is possible and legitimate. Creswell (2009) substituted the term "worldview," which refers to a person's beliefs and view of the world. The epistemology or worldview of this study was social constructionism. People construct meanings from their interpretations as they engage and interact with others and are influenced by context and culture (Crotty, 1998). In this way, they create an

understanding of the world in which they live and work. When approaching research from a constructionist epistemology, the researcher is attempting to gain an understanding of participants' interpretations of reality from social interaction and interpersonal relationships, social contexts and culture, and involvement with the events being explored. The researcher then interprets these meanings based on his or her own experiences and background, while generating meaning from data collected. In this way meaning is constructed, not discovered (Crotty, 1998).

Theoretical perspective, according to Crotty (1998), is the philosophical position behind a chosen methodology, which provides context and grounding. The theoretical perspective of this study was symbolic interactionism. Mead (as cited in Crotty, 1998) was known for his work in defining symbolic interactionism. The viewpoint of symbolic interactionism is that culture and community shape individuals' personality and behavior. When employing symbolic interactionism as a theoretical perspective, researchers must consider situations from the point of view of the actor or participant. The symbols referred to in symbolic interactionism are the symbols of language used as a tool to share and communicate. Through language, people can share perceptions, feelings, and attitudes and interpret their meanings and intent (Crotty, 1998).

The methodology of this study was phenomenology. Phenomenology is concerned with understanding the world as it presents itself to an individual, through examination of a phenomenon (Moustakas, 1994), or to discover the meaning of specific experiences to individuals who have encountered them (Creswell, 2003; Van Manen, 1990). Crotty (1998) stated that to successfully examine a phenomenon the researcher

needs to set aside any previous understanding of and revisit the phenomenon to gain new or enhanced understanding. In phenomenological research, the individuals' experience is the focus and source of data. From the analysis of this data, an understanding of the shared experience can be built from the lived experiences of each participant (van Manen, 1990).

The methods are the techniques proposed in a study to gather and analyze data related to the research questions (Crotty, 1998). This study used semistructured interviews using open-ended questions to gather data from participants. Interviews were conducted in a neutral setting between the researcher and participant. I then identified themes from analyzing the interview data.

Role of the Researcher

My role as the researcher during this study was as an interviewer, observer, and data analyst. I explained the study to the participants and answered any questions related to the study. I served as the only interviewer and did not express personal thoughts or opinions regarding the phenomenon while conducting the research study. I was responsible for the collection and analysis of data along with the storage and the sharing of data.

I did not have a current or previous supervisory, instructor, or other power relationship with any of the participants. Given that the participants and I share the same previous profession, it was possible that some participants may have been employed by the same company or have attended the same colleges or professional organizations. However, these professional relationships were considered incidental and did not

influence the responses of the participants or the outcome of the study. No incentives were offered to participants other than a small thank you coffee shop gift card.

Methodology

Participant Selection Logic

I chose participants for this study from the population of women who had completed postsecondary education and had worked in professional IT positions as defined by the Bureau of Labor Statistics (U.S. Department of Labor, 2011). These positions included titles such as the following: computer systems analysts, computer programmers, software developers, applications and systems software, web developers, computer support specialists, database administrators, network and computer systems administrators, computer network architects, and other professional level computer occupations. Participants had left their IT career and were working in another career, or not working for pay at the time of the study.

Creswell (1998) suggested including from 5 to 25 individuals in a phenomenological study with the requirement being that participants had experienced the phenomenon. Small numbers of participants for a research study suggest that there will be more time for data collection from each participant, according to Creswell. Marshall (1996) stated that the appropriate sample size for a qualitative study will become obvious as data collection and analysis progresses, and the research question is adequately answered.

I recruited and interviewed a sample from the above-described population. The final number was determined by when saturation of data occurred. Strauss and Corbin

(1990) present a three-part definition for saturation. These authors suggested that saturation has been reached when no new data is being found for categories being examined, categories seem well defined, as well as the relationships between categories are completely described. An iterative approach to data collection, analysis, and interpretation can assist in determining when new categories or themes stop emerging, implying saturation (Marshall, 1996).

Judgment or purposeful sampling is a common method of sampling in qualitative research (Creswell, 2007; Marshall, 1996). Since findings in qualitative studies may not be generalizable to a larger population, selecting participants based on their ability to articulate their experiences with the phenomenon is important. This type of sampling activates existing social networks that assist with obtaining the essence of the phenomenon being studied.

I sought initial participants for this study through social media communications. I shared information about the opportunity to participate in this study through posts on the social media sites LinkedIn, Facebook, and Twitter. After I identified the first participants, I planned to use a snowball sampling method if necessary to locate further participants for this study, as people with similar experiences and backgrounds were desired. In snowball sampling, one participant may refer another person she knows that fits the criteria, thus increasing the size of the sample like a snowball growing in size as it rolls. Snowball sampling is a typical sampling method when attempting to reach participants that no longer are reachable through professional or other organizations (Creswell, 2007).

In this study, all participants were identified from initial contact on social media sites. No further participants resulted from snowball sampling.

Instrumentation

In-depth interviews are a common data collection method for phenomenological studies (Creswell, 2007). I interviewed participants with a researcher-developed interview protocol (see Appendix A). I designed the interview protocol based on the theoretical framework described in previous chapters. Interviews were semistructured, conducted in person or through a phone call, and lasted 40–80 minutes per participant, allowing for in-depth coverage of the lived experience. I piloted the interview protocol on two participants to verify interview length and clarity of questions. I took written notes and audio recorded the interviews. I transcribed the interviews. Questions were designed to be open-ended to allow participants to recall and relate their experiences in detail. Questions were also designed to examine the general themes expected based on themes found in the current research comprising the literature review. I was prepared to guide participants to maintain expected length of interview if necessary.

Data Collection

I requested permission to conduct the study from the Walden University Institutional Review Board (IRB) and obtained approval before contacting prospective participants. Once identified, I briefed those participants according to the description of study information in Appendix B. The participants chose a time to meet that was convenient. If the meeting was in person, the place chosen needed to be relatively quiet to allow for audio recording.

I brought a digital recording device, pen, and paper to the meeting. I sent the informed consent form detailed in Appendix C to the participant ahead of time. I reminded each participant of the purpose of the study, what was being asked of her, and her right to stop the interview or to refuse to answer any of the questions. Once the participant signed the informed consent form shown in Appendix C, I turned on the audio equipment and began the interview. Since participants were each in professional IT roles for more than 5 years, I did not anticipate language barriers and none occurred.

Field notes of the interviews included date, time, location, participant's name replaced by a code, researcher's observations, and participant's responses. I followed the interview protocol (Appendix A), with additional questions as necessary to clarify responses. At the close of each interview, I turned off the audio equipment and thanked the participant for taking part. I asked the participants if they knew of anyone else who would be qualified to take part in this research study and informed them that they might receive a copy of a portion of their transcribed interview for their review, to ensure credibility. No follow-up interviews were planned.

Data Analysis Plan

I transcribed all audio recorded interviews with the help of computer software appropriate for this purpose, called Transcribe. I sent partial transcripts to each participant for proofreading and approval. Coding and categorizing of interview data was facilitated by Dedoose software.

Coding is an essential part of data analysis in a qualitative study (Saldana, 2009). Several iterations of coding may be done during the data analysis process. Several coding

methods are described as either first cycle or second cycle coding. Exploratory methods of coding, considered first cycle coding methods, are meant to preliminarily assign codes to data in a qualitative study based on prior work (Saldana, 2009).

The first cycle coding methods used in this study were attribute, provisional, and emotion and values coding (Saldana, 2009). I used attribute codes to track demographic information about participants such as age, location, and time of interview. I performed provisional coding with a “start list” (p. 120) of codes developed from previous research covered in the literature review. As the study progressed, I revised these codes.

I considered the affective methods of emotion coding and values coding (Saldana, 2009) to record human emotions experienced by the women being interviewed. These codes typically are hand-written by the interviewer as they are observed during interviews. Emotion and values coding may be relevant when gathering data on interpersonal experiences and participant motivation. I found the participants in this study to be largely unemotional during their interviews, so emotion and values coding was not relevant.

I considered using second cycle coding to reorganize and reanalyze data coded after using first cycle coding (Saldana, 2009). Codes may be merged, eliminated, or renamed during this phase to create a smaller and more accurate set of codes. The second cycle coding method of pattern coding can be used to create a smaller number of themes. Pattern coding is appropriate in several types of studies, including those that examine social relationships and those that are searching for causes and explanations (Saldana,

2009). First cycle coding revealed four main themes, which was a small enough number that second cycle coding was not necessary in this study.

Ethical Procedures

Participation in this study was voluntary and not coerced (Creswell, 2009). The participants were women who had left the IT field after more than five years in a professional IT role. The IRB approval number for this study was: 01-23-14-0102678 and expired on January 22, 2015. The women in this study were asked to share personal information concerning their work lives and careers. Each participant signed a participant consent letter (see Appendix C). Each participant was allowed to view her interviews after transcription and provide feedback. Each participant understood that she had the opportunity to withdraw from the study upon request. Each participant has the right to copies of all forms signed relevant to this study.

Anonymity was protected by using codes for each participant, as suggested by Creswell (2009). Data once transcribed is kept on a storage device exclusively for use for this data during the remainder of this study and kept in a locked file for 5 years. Language that is biased based on gender, sexual orientation, racial, or ethnic group, disability or age was not used in the writing of the research results. Findings were not suppressed, falsified, or invented to meet the needs of the researcher or the audience (Creswell, 2009).

Summary

This chapter described the research methodology and study design and the rationale for choosing this approach. The purpose of this qualitative phenomenological

study was to explore the experiences of midcareer women who have left the IT field. The sample consisted of 10 participants plus two additional participants for the pilot. I coded and analyzed the data with the help of software designed for that purpose. In Chapter 4, I will present the results of the data analysis.

Chapter 4: Results

Introduction

The purpose of this phenomenological study was to explore the experiences of midcareer women who had left their careers in IT. The following research questions guided the study:

1. What are the experiences, thoughts, and feelings that lead some women to leave the IT profession after gaining years of experience?
2. What individual, interpersonal, or social situations influenced or affected their experience of leaving IT?
3. How did occupational or organizational culture influence or affect their experience of leaving IT?

Before beginning data collection, I received approval for this study from the Walden University IRB (Approval # 01-23-14-0102678). The collection of data involved semistructured, face-to-face or telephone interviews of 12 women. I placed several announcements on social media sites including Facebook, LinkedIn, and Twitter requesting participants. I found two participants from Facebook, ten from LinkedIn, and zero from Twitter. I conducted a small pilot study using the first two participants to test the interview instrument. I will briefly describe the results of that pilot and the changes made to the interview questions based on that pilot. I will review aspects of the study including setting, demographics, data collection, and analysis methods I will explain the trustworthiness criteria. I will detail and discuss at length the results of the study in this chapter.

Pilot Study

I conducted a pilot consisting of two participant interviews. The intent of the pilot was to test the length and content of the interview questionnaire. The interviews conducted were shorter than anticipated, at approximately 30–40 minutes. When conducting the interviews, the first question seemed abrupt, so I added the introduction question, “Tell me briefly about your focus in college and then the beginnings of your career.” This question was meant to create rapport and encourage the participants to begin sharing their career experiences.

Since many of the experiences the participants shared were not positive, I also decided to add an ending question asking the participants to summarize their positive overall impressions of being in the IT career field. I felt this would help balance the input as well as lighten the mood of the interview before completion. I also asked the participants, “Are there any other experiences or stories that you would like to tell me about?” This allowed the participants to share any additional points they might have thought of during the interview and also helped create a smooth conclusion to the interview. All original questions remained unchanged in the interview instrument. After completing these two initial interviews, I proceeded to interview participants for the main study.

Setting

None of the study participants were working for the same organization at the time of the study. Two of the participants were working in family businesses, one was employed as a consultant, three were graduate students, and two participants were

offering career services to people in job search. One participant was volunteering as a way to decide on a new career path in nonprofit work, and one was retired.

Several of the participants were still connected to the IT field in some way, through advising or teaching, for example. One participant noted, “I’m helping with branding and how do you create re-creatable revenue streams and how do you work on getting the right sales staff, but more as an advisor.” And another participant stated, “I currently teach full-time at a Technical College and I teach Software Development classes, primarily web development, mobile development, and game development.”

Participants seemed drawn to be a part of the IT field though not working directly in an IT position. One participant stated, “I’m not getting a paycheck from technology but I don’t think I’ll ever be completely out of it.” Another participant was at home with children, but was partly through a PhD program to enter a new but technology-related field. She stated:

Right now, I am home with the children, working on a couple of small projects.

Yes, technology related but not totally tech related. One of the things I’m doing is I’m writing a business plan for a website for a psychology/education/branding business. And, I’m looking for other assignments so I can afford to go back to finish my PhD.

And, among several participants there was a sense of relief at being out of the IT field. One participant shared, “I’m also no longer on call; I can sleep. Which is an amazing thing, for two years I hardly slept.”

But, at least one participant who was a student at the time of the interview was trying to get back into IT after being out of the field for some time.

So I'm trying, I feel like I'm crawling, climbing, getting my way back up because I've lost, I've got to get myself back in the mix. I've got to get myself caught up, I think I have the skills but it is hard. It was hard to keep that up.

Two participants were working as career or job search consultants, working especially with professionals in IT. One stated:

I'm helping the others who are in IT, the developers, the programmers, even executives and accountants, people working in a lot of industries due to this economy who are looking to advance themselves.

Three of the participants were involved in promoting or supporting other women in IT or related careers. One stated, "My mission in life is to raise money for scholarships for girls in STEM fields, specifically software engineering."

And another participant shared:

I've always wanted it to be to improve the quality of life for people and then when I got involved with software, I thought well that's the way through technology, through software technology is to improve...I mean we've seen what's happened through the Arab spring, you know, the Internet and all that stuff, so now what I want to do is I want to encourage the next generation of women in software engineering. Through scholarships, through things I can do locally myself.

But one was unsure if assisting young women to enter the IT field was a good thing. This participant stated:

I have to say when I first left in 2000, I had my doubts whether we should be encouraging young women to enter the field. I didn't feel like I could actually encourage [them] to enter the field. But then I decided, well if that's what they really want to do, we should help them do it. Especially if they're already in it, we should give them support.

Demographics

The participants of this study were to fit the demographic of women who were midcareer, with 5 or more years work experience, who lived and worked anywhere in the United States. The participants interviewed ranged in age from “not even 40 yet” to early 60s. Participants currently lived on the West and East Coasts and in the Midwest area.

Data Collection

I conducted interviews with a total of 12 participants, two for the pilot and 10 for the study, from February to April 2014. One interview was conducted in person, and the remaining interviews were held over the phone. The form of the interview did not change based on setting. The participants were all in their own homes or private offices when being interviewed. As the researcher, I was in my home office when meeting by phone. The interviews varied in length from 30 to 75 minutes. The interviews conducted by phone were recorded using an iPhone app called Call Recorder. The .wav audio files created were then saved to a secure DropBox folder used exclusively for this purpose. The in-person interview was recorded by an iPhone app called Voice Recorder. The .wav file was also saved to the DropBox folder. With the help of a Chrome app called

Transcribe, I transcribed the recorded files into Microsoft Word files and saved them on Dropbox.

Data Analysis

To complete data analysis, I loaded all the transcribed interviews into the Dedoose software application. I set up provisional codes using a starting list of codes developed from the previous research covered in the literature review. These codes included individual, interpersonal, occupational, organizational, and societal factors that have been implicated in previous research as causing midcareer women to leave the IT field. Individual factors contained the code for career interests. Interpersonal factors included mentors/role models and social networks. Occupational factors were made up of individuals' occupational commitment, the threat of obsolescence of skills in a fast-changing career field, and the male-dominated and high-expectation culture of IT. Organizational factors include the culture of the organization, guided by explicit management policies and organizational climate, or the environment created by the implicit implementation of those management policies and actions. Social/societal factors included work-family balance issues and gender bias or discrimination in promotion or treatment.

As the data analysis progressed, new themes emerged including *burnout* and *meaning of work* and I added these two codes to the original list under Individual factors. After adding each new code, I completed another iteration of coding to be sure to account for all instances of these new codes.

Evidence of Trustworthiness

Lincoln and Guba (1985) proposed four criteria to assess the trustworthiness of qualitative research – credibility, transferability, dependability, and confirmability. These criteria together make up a standard to validate the trustworthiness of qualitative research. I employed various strategies and techniques to enhance the study's trustworthiness.

Credibility in the integrity of the study's findings can be achieved by participant validation in the form of member checking (Krefting, 1991). For this study, member checking occurred after the participant interviews, when each participant was sent their transcribed interview for review, and will be again after the study's findings are disseminated to participants. During the initial interviews, I asked clarifying questions to ensure the women's stories were accurately reflected on the audio recordings. After conclusion of data analysis, I will forward a summary of the study's findings to each participant via email including the themes revealed by the data.

Transferability in qualitative studies refers to the degree to which the study's findings may be applicable to other settings, contexts, or individuals due to shared experiences or characteristics, similar to the concept of generalizability in quantitative research (Lincoln & Guba, 1985). In this study I aimed to describe the lived experiences of women with the common experience of having left their IT careers. The results are transferable to the extent that the participants represent a broad age group and geographical setting, with the common experience of having left the IT field midcareer.

Dependability is determined by the consistency of findings (Guba, 1981). I used a code–recode approach during the analysis phase of the study to increase dependability, as suggested by Krefting (1991). Recoding the same data more than one time and comparing the results can enhance credibility.

Confirmability describes the extent to which qualitative research is characterized by neutrality (Lincoln & Guba, 1985). According to Strauss and Corbin (1990), it is not uncommon for researchers to share similar life and cultural experiences with their participants, and these shared experiences can enhance understanding of the participants' lived experiences. Strauss and Corbin (1990) argued that the researcher's assumptions, biases, and beliefs brought to the research process should not automatically be considered negative as long as researchers avoid imposing his or her own experiences onto the data. The two participant pilot provided an opportunity to be aware and reflexive concerning the questions being asked and assumptions being made, based on my related life experiences.

Audit trail documentation of this study includes telephone call logs, signed consent forms, digital audio recordings of interviews, and interview transcripts. The Dedoose software also contains the actual codes and categories that form the basis of my analysis.

I employed these strategies and techniques to enhance the study's trustworthiness. The outcome of this research will be reviewed in detail in the next section.

Results

I provisionally coded the data gathered from this study according to categories described in the Literature Review in chapter 2. These categories included individual factors, interpersonal factors, occupational factors, organizational factors, and social/societal Factors.

The data showed that the highest number of participant experiences fell under social/societal factors, made up of work–family balance and bias and discrimination. All 10 participants shared experiences in this category, for a total of 45 mentions.

The next highest category based on number of experiences was occupational factors, comprised of occupational obsolescence, occupational commitment, and the occupational culture of IT. Nine out of the 10 participants shared experiences in this category for a total of 43 instances.

The third category the data pointed to was organizational factors, including organizational climate and organizational culture. Again, nine out of 10 participants shared experiences in this category, for a total of 40 mentions.

The top four themes to emerge from the data analysis were the occupational culture of IT (29 mentions), organizational climate (28 mentions), work–family balance (26 mentions), and bias and discrimination (17 mentions). I will review these four themes and include specific references from the interviews supporting these themes.

The data analysis also revealed two new themes that were not derived from the literature review – burnout and the desire for meaningful work. I will also define and review these new themes and include excerpts illustrating these themes.

Theme 1—Occupational Factors: Occupational Culture of IT

The participants of this study shared that, in their experience, the IT culture put extreme demands on the number of hours employees were expected to work along with requiring availability to work at all hours of the day and night. One participant described her experience while interviewing for IT jobs:

I got so turned off about “Oh, are you willing to work, you know, 50 hour weeks? You know that is the expectation.” And when people are telling me that, I’m assuming, “Oh, they say the expectation is 50 hours. It really means I’ll be working 60 hours”.

The IT culture the participants experienced also was male-dominated and allowed behavior that would not typically be acceptable in a professional work environment, according to the participants.

I’ve been in a couple of companies where people who had technical prowess didn’t have to behave in a generally accepted form, at all. [They] were allowed to just not behave how you would want your children to behave, or how you would want anyone to behave. And yet, because of their technical ability that was OK.

IT personnel, including managers, showed an open disdain for the end users they supported and exhibited superiority over outsiders to the IT team. One woman shared:

And it’s a bunch of guys telling dirty jokes and smoking cigarettes and talking about how the users are a bunch of idiots but you gotta suck up to them because that’s how you get paid.

These factors described combined to create an occupational culture that was similar across the organizations that these participants worked for during their careers in IT. Nine out of the 10 participants shared experiences in this category for a total of 43 mentions.

Theme 2—Organizational Factors: Organizational Climate

The participants of this study shared their experiences involving an organizational climate at their work places that indicated a lack of perceived power or position for women in male-dominated IT departments. The experiences ranged from what might be considered subtle slights, such as the few women in the group being expected to clean up after a team lunch, to incidences of disrespectful treatment by managers. One woman described this treatment by her boss: “He [my boss] would call me by my last name, shout my name across the room. It was not a comfortable working environment for me there.”

The participants experienced work schedules that did not allow for outside responsibilities, a glorification of technology, individualism valued over teamwork, and the rewarding of technical skills over social skills.

Promotion decisions were perceived to be biased towards men, and the experience of being the lone woman on a work team or department led to feelings of discomfort within the work environment. A participant described a practice that was implemented that made for an uncomfortable work environment:

They asked us to do something called pair programming where you sit right next to someone and you literally are programming with them all day – 7, 8, or 10

hours. And it just felt strange to me, because if I had to go to the restroom, I'd have to tell this guy next to me, "I have to go to the restroom". That just felt a little awkward besides being in such close proximity. Maybe it would have been better if there was a woman once in a while to pair with.

Eight out of the 10 participants described experiences involving a chilly organizational climate for women, with a total of 28 mentions.

Theme 3—Social–Societal Factors: Work–Family Balance

Nine out the 10 participants described work–family balance pressures including the expectation of long work hours, being on call around the clock, and required business travel. One participant explained that as others in her area left the company, her job expanded: “So I was working a lot of hours. Probably close to 70 hours a week and I was on call for over a year straight, around the clock on call.”

The participants also discussed their changing personal priorities, as they became parents. Those that had been traveling extensively for work, found that not a fit for their new family life. Some began making different decisions about how much time they dedicated to work. One participant shared:

Then after I got married I had my first child six years ago. I found myself less interested in work because I now had another role at home. And now I have a second child who is, she's just one, and it's very different now because I want to be sure I raise them right. So I have to split my time.

A total of 26 experiences were shared in this category by nine out of 10 of the participants.

Theme 4—Social–Societal Factors: Bias and Discrimination

Five out of the 10 participants in this study brought up experiences categorized under bias and discrimination. Incidences of bias and discrimination included examples of men being promoted ahead of women and women being directly asked by their superiors about their plans to bear children. A participant shared that her manager questioned her on her intent to have children: “The first thing, when I transferred to the marketing department, the first thing my boss asked me was when I was trying to have kids. I couldn't believe he would ask me that.”

Another participant relayed that her manager decided against promoting her to a manager position because she was married and had a baby:

And I went in to see his manager and his manager told me that just the weekend before he had helped a friend of his move out from his house because his friend was getting a divorce and they'd just had a baby and it was really sad that they were getting a divorce and they just had a baby. So he didn't think that I should be manager of the group, because I just had a baby and he didn't want anything to happen to my marriage.

Seventeen mentions were made by 5 out of the 10 participants, indicating bias and discrimination based on gender.

New Themes

During data analysis, I added codes for two new themes that appeared in the data. Those codes included *burnout* and *meaning of work* added under individual factors. Three out of the 10 participants shared experiences describing burnout for a total of 10

times. Five out of the 10 participants shared experiences related to their desire to do meaningful work, for a total of nine mentions. These two factors were not directly addressed by the previous research included in the Literature Review.

New Theme 1 – Individual Factors: Burnout

Three out of the 10 participants in this study stated that they suffered from burnout upon leaving their IT career. Employee burnout has been described as a progressive psychological response to chronic work stress involving emotional exhaustion, depersonalization, and feelings of reduced personal accomplishment and has been linked to turnover (Dunford, Shipp, Boss, Angermeier, & Boss, 2012).

One participant expressed her feelings of burnout upon leaving her IT career: “I left my software engineering career behind because I was burned out, I had been through depressions. I was suffering physically, mentally, from the experience.” And another participant described that after leaving her IT career: “For 3 months I did absolutely nothing except watch television and keep my house going and my son going at a minimal level.”

New Theme 2 – Individual Factors: Meaning of Work

Half of the participants (5 out of 10) described the desire for their work to fit their individual morals or ethics around work and career. They mentioned wanting to find meaning in their work as a factor in their decision to leave the IT field. Several of the participants stated that their interest in technology was waning as their belief declined that IT could provide a means to contribute to the world in the way that they wished.

One participant expressed her need to have her work match her desire to leave an impression on people. She stated:

I started thinking about how I wanted people to remember me and it wasn't because of technology that I wanted them to remember me. It was more about the, the people development aspects, or the departmental changes, organizational changes things that I had done. And I just started thinking, that's nothing to do with technology. And I might be happier making something more meaningful to me in my career.

Positive Aspects of IT

Despite sharing all of their challenging experiences, six out of 10 participants were able to express some positive aspects of their career in IT. A high salary was often shared as a positive factor along with the opportunity to travel. The satisfaction of accomplishing or building something tangible was also expressed as a positive experience. Being part of the incredible rate of technology advancement was also mentioned as a positive aspect of the field.

One participant shared:

I really liked getting things done, so I get a lot of satisfaction out of getting things done. So I liked the whole process of planning the piece of software and scheduling it and meeting the schedule and working with engineers.

And another participant shared a similar positive aspect of her career:

There was always something finite, so when your system went live, it was satisfying in that you created something that didn't exist before. It didn't matter if

you got credit for it or not. When you watched the first transaction to go all the way through the system, it was like "cool!" But you were always learning new things and in general you got to work with some really smart people.

One participant expressed her feelings about her IT career like this: "I think it's been tremendous, I mean you take a girl from a small town in New York and I have been all around the world with my technology job."

A participant who speaks to groups involved in promoting IT careers for young women expressed her thoughts this way:

I think that it's endless opportunity and I speak with a lot of women's groups and young girls' groups and I say "no matter what you do, get at least a minor in Computer Science" or web design or ecommerce or something because you can really craft your own career in IT there's so much need in IT that you could start off on one side of the spectrum and end up in the completely opposite.

She went on to say:

The trajectory and the path is limitless. But you need to have some basic foundations that will allow you to open those doors you need to really craft the career you want. And money, oh my gosh, the money is insane!

Summary

The purpose of this phenomenological study was to explore the experiences of midcareer women who have left the IT field. The study addressed research questions related to individual, interpersonal, occupational, organizational, and societal factors to gain knowledge of the experiences of women in the workplace working in the IT field.

After the interviews had been transcribed, reviewed, and analyzed, four main themes emerged. These themes included negative aspects of occupational culture and organizational climate, and work–family balance, and gender bias and discrimination. Two new themes emerged, burnout and desire for meaningful work.

In Chapter 5, I will provide an overview of the study, an in–depth analysis of the findings, and the significance of the study. Chapter 5 will also present ideas for further study and the implications for social change.

Chapter 5: Discussion

Introduction

The experience of midcareer women who decided to leave careers in IT is not well understood. The purpose of this study was to understand and describe the lived experience of women who have left the IT field. Career opportunities continue to grow in IT but the number of people, especially women, choosing to enter IT has been dropping. At the same time experienced professionals are leaving, with women 2.5 times as likely to leave the field as men (Wardell, Sawyer, Reagor, & Mitory, 2006). Fifty–six percent of women leave their corporate IT jobs (Hewlett, Luce, Servon, Sherbin, Shiller, Sosnovich, & Sumberg, 2008) leaving women to make up only 25% of the IT workforce (DuBow, 2011; Wentling & Thomas, 2009). As a minority population in most organizations, and especially in the IT field, women have unique experiences. This study aims to understand the lived experiences of women who worked in IT and made the choice to leave the field.

The most appropriate voice in a phenomenological study is the voice of the people experiencing the phenomenon, in this case, women who have left their IT career. I interviewed 10 women for this study. The guiding research questions were:

1. What are the experiences, thoughts, and feelings that lead some women to leave the IT profession after gaining years of experience?
2. What individual, interpersonal, or social situations influenced or affected their experience of leaving IT?

3. How did occupational or organizational culture influence or affect their experience of leaving IT?

The four key themes confirmed by this study were negative aspects of organizational climate and occupational culture of IT, lack of work–family balance, and gender bias and discrimination. New findings that emerged from this study included the effects of burnout and the importance of doing meaningful work.

Interpretation of the Findings

Several of the findings from this study confirm previous research from the peer–reviewed literature described in Chapter 2. I will mention these findings specifically in this chapter. New findings were revealed in this study that were not covered in the literature review and these new findings will also be reviewed in this chapter.

Confirming Findings

Findings from the current study confirmed the findings of researchers including Guzman, Stam, and Stanton (2008) and Guzman and Stanton (2009) who characterized the occupational culture of IT as one of extreme time demands, necessary continuous technical learning, and IT workers' feelings of superiority over nontechnical people. Also confirmed by the findings of this study was the work of Soe and Yakura (2008) who theorized that the male–dominated culture, work demands, and expectation that work take over non–work hours combined to create a chilly organizational climate for women in IT.

Further findings from this study confirmed issues with work–family balance proposed by the research of Quesenberry, Trauth, and Morgan (2006) and Reid, Allen,

Armstrong, and Riemenschneider (2010) such as the difficulty of keeping up with new technology and heavy work demands while handling needs of family or other outside interests. Gender bias and discrimination in hiring, salaries, and promotions was examined by Allen, Armstrong, Riemenschneider, and Reid (2006) and Wentling and Thomas (2009), another theme revealed by this study, confirming those researchers' work.

The majority of participants in this study did have mentors or role models during their time in IT; all but one were informal mentoring relationships. This finding confirmed the research of Logan and Crump (2007) who found that the majority of women had informal mentors who helped them in their careers.

Nonconfirmed Findings

The current study did not confirm all previous research included in the literature review. Some themes that were not revealed as important to the participants of this study included the Individual Factor of career interests and the occupational factor of occupational commitment.

Most participants in this study described a strong interest in math, computer science, or related interest area that led them to pursue an education and career in IT, indicating an appropriate career interest. The two remaining participants were led to the major or the work because of the career and income potential of IT. The majority of participants also expressed confidence in their ability to continuously learn new skills to stay relevant in the field, indicating self-efficacy and occupational commitment.

New Findings

The participants of this study described experiences including burnout and finding a lack of meaning in their work. Participants expressed a desire to contribute to the world in a positive way and described that they were not experiencing this in their IT work. These two factors were not indicated in the research included in the literature review.

Theory

This study was based on a conceptual framework consisting of a career change model by Rhodes and Doering (1983), a model of gender influences on power during the span of a career by Ragins and Sundstrom (1989), and a model by Fu (2010) that examined the unique aspects of IT and how that culture affects career commitment.

Rhodes and Doering (1983) theorized that a combination of organizational and personal factors created a person/organization and person/work environment correspondence, and perceived career growth and positive performance. The presence or absence of these factors would then create career satisfaction or dissatisfaction. When the result was job dissatisfaction, this model then describes a job change process largely dependent on the perceived availability of alternative opportunities.

None of the participants in this study left their positions and their IT careers based on perceived career alternatives. Several left their positions because of termination or early retirement packages during organizational downsizing. Some left because of a family move or a decision based on family situation and needs. One left because of a call from a recruiter offering an alternative career position. Their preparation for changing to a new career thus came after the leave-taking because the leave-taking was unplanned or

involuntary. In some cases this preparation involved further education, volunteering, networking, or small business start-up. These results cast some doubts on the validity of the Rhodes and Doering (1983) model in the case of midcareer women leaving IT careers, since alternative career perception and preparation were not involved in the decision making process for any of the participants interviewed.

Ragins and Sundstrom's (1989) model suggested that an individual employee operates within interpersonal relationships that occur in occupations within organizations, which are ultimately influenced by societal pressures. These researchers suggested that to understand a person's experience at work, factors at all levels need to be explored as all levels are involved in a person's lived experience.

The findings of this study agree with Ragins and Sundstrom's (1989) model in that the main themes to emerge—occupational culture, organizational climate, work-family balance, and gender bias and discrimination—represented factors from the occupational, organizational, and societal levels. These themes could be thought to be intertwined because there are similar characteristics and features among these themes. For instance, the expectation that IT employees work an extreme number of hours and at all hours of the day and night in the IT culture also makes work-family balance difficult. An organizational climate that is chilly towards women could implicitly condone cases of gender bias and discrimination. These intertwined factors seem to support the Ragins and Sundstrom (1989) model in that characteristics that make up an employee's lived experience leading to career turnover and change involve interpersonal, occupational, organizational, and societal factors.

Fu's (2010) model of career change was based on the concept of investment size as a predictor of the level of commitment to an ongoing relationship. The model also included career satisfaction and availability of alternatives and added the factors of professional self-efficacy and threat of professional obsolescence.

This study did not reveal themes of a lack of professional self-efficacy or threat of professional obsolescence. Participants did acknowledge that IT is a field requiring continual need to update skills and technical knowledge, but did not cite this as an issue or a factor in their career decision-making. These results cast some doubts on the validity of the Fu (2010) model in the case of midcareer women leaving IT careers since none of the participants shared experiences showing lack of professional self-efficacy or threat of professional obsolescence.

Limitations of the Study

This study had generalizability limitations based on the sampling criteria and sample size. The sampling criteria was intended to clarify the lived experience being studied, but may have limited the generalizability of the results. The sample size of 10 could be seen as a limitation, but Creswell (2007) stated that the intent of a phenomenological study is not to generalize, but to understand the specifics of the phenomenon studied.

Snowball sampling was proposed as a method to obtain participants for this study, but no participants were obtained through snowballing. Each participant was reached individually through requests for participants distributed through social media. Thus, the sample was drawn from women who actively use social media.

Recommendations

Further research is warranted on the findings of this study including the effects of the distinct IT culture that exists within IT departments and spans all organizations, the factors that contribute to an unwelcoming organizational climate, work–family policies, and gender bias and discrimination in the IT field. I recommend more research focused on the new findings of this study, including the issue of burnout. The IT occupational culture promotes excessive work hours and around the clock availability. The data on organizational climate also shows an expectation of long work hours and constant availability for work. Work–family balance suffers under these expectations. Further research may help in understanding what causes burnout, the impact on turnover, and what organizations can do to minimize this issue, especially for women in IT.

Another new finding from this study, the perception of lack of meaning in work, warrants more study. Technology holds the potential to assist people in many aspects of life, and yet participants described a lack of meaningful work. Further research is implicated as to how this can be addressed to make IT a more rewarding career choice for women.

Though information technology may not be the only field that requires excessive hours from its workers, it is unique in its requirements such as that employees devote much of their off-work time to constantly updating technology skills and to being on call at all hours to provide system or user support. It is also unique in that the number and percentage of women in the field has been decreasing over several decades while women are joining other demanding career fields in greater numbers. However, the findings of

this study may have implications in understanding the experience of women in other careers that are male-dominated and demanding.

Implications

The social change implications of this study span potential individual, family, organizational, and societal/social policy benefits. Individual women and men who work in the IT field have the opportunity to impact their work environment if informed of the issues confirmed or revealed in this study. Informed management and corporate policy makers could drive organizational behavior and policy changes benefiting women, and men, in IT. More informed corporate and government decision-makers may lead to more effective and helpful employment policies.

It is important for women, at an individual level, to be better represented in the field of IT to provide opportunities for women to be in a highly paid profession. At an occupational and organizational level, gender diversity brings higher productivity, innovation, and financial results for companies. The change possible at a societal level includes increased global competitiveness from improved retention of midcareer women in IT in corporations and government and the increased productivity and innovation that is possible with a fully staffed and more diverse workforce. There is predicted to be a high demand for people with IT skills in the coming years in U.S. corporations, and filling these needs will require that all are encouraged to participate, not just one gender.

Conclusion

Current factors in organizational climate and IT culture lead to challenges with work-family balance, possible burnout or loss of meaning of work, and midcareer

women leaving IT. An increased understanding of the experience and challenges of midcareer women in IT may inform changes in individual and managerial behavior, and organizational and government policy. Addressing these issues could open up opportunities for women, and for corporations, to welcome and keep women, who are the majority of the workforce, in this growing and in demand occupation.

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Appendix A: Interview Questions

Job and Career Satisfaction

Individual Factors

1. How did your experience working in IT match your original career aspirations?

Interpersonal Factors

2. What interpersonal relationships (role models or mentors) or networks were helpful or noticeably absent during your IT work?

Societal Factors

3. Describe your non-work and family roles and how did those affect your IT career?

Occupational Factors

4. Describe any unique challenges and/or rewards you experienced working in the IT culture.

Organizational Factors

5. Did you feel your company and management offered a clear career path or plan for advancement within the organization?

Career Commitment

Professional Self-efficacy

6. How confident did you feel of your ability to continue successfully in the IT field?

Threat of Obsolescence

7. Describe how you kept up with the need to learn new technology and skills?

The Career Change process

Thoughts of changing jobs / careers

8. What was happening in your job/career when you first thought about leaving IT?

Intention to Search / Actual Search

9. Describe the process you went through to investigate new career options

Preparation for change

10. What were the steps you went through to prepare for a new career including any additional education/training needed, and the support or resources you had available?

Actual change

11. Describe your experience leaving the IT job/career and the start of your new work.

Appendix B: Description of Study

Midcareer Women Leaving Information Technology:

An Examination of the Phenomenon

A Research Study

Who: Women 21 years of age or older who were employed in a professional IT position for more than five years. Participants should be willing to discuss their thoughts and feelings regarding their experience of leaving IT.

Objective: This study specifically aims to explore the experiences of women who have chosen to leave the IT field to obtain an in-depth understanding of the decisions these individuals make to change careers.

Eligibility: Participants in the study must be 21 years old or older. The participants must have a two or four year college degree and have been employed in the IT field in a professional position for more than five years. Participants must not be currently employed in the IT field.

When: Following obtained informed consent, participants will meet individually with the researcher for 1 to 2 hours. Participants will be asked semi-structured questions.

Where: Individuals interested in participating in this study may contact Susan Way, the researcher, at (612) 723-0454 or susanfway14@gmail.com to ask further questions or to arrange a time to meet to complete the informed consent and interviews.

Although participation is greatly appreciated, participation in the study is voluntary and participants will not receive any financial compensation.

Please be informed that all information will be kept confidential, and that you may withdraw from the process at anytime, even after interviews have begun. If you want to talk privately about your rights as a participant, or if you have questions about your participation in this study, you may contact Dr. Dr. Leilani Endicott. (anonymously, if you wish). She is the Walden University representative. Her phone number is 1-800-925-3368, extension 1210.

Appendix C: Consent Form

You are invited to take part in a research study of midcareer women who have left the Information Technology (IT) field. The researcher is inviting women who attended college, worked in a professional IT position for more than five years, and no longer work in an IT position to be in the study. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Susan Way, who is a doctoral student at Walden University.

Background Information:

The purpose of this study is to examine the experiences of women working in Information Technology (IT) who have made the decision and left the IT career field. This study will seek to find commonalities that may exist between the participants, and possibly lead to policy recommendations for corporations and government agencies that employ IT professionals.

Procedures:

If you agree to be in this study, you will be asked to:

- Participate in a research study that will be conducted over a 3-month span
- Participate in an initial one-on-one interview with the researcher
- Allow the researcher to record the interview
- Agree to review the transcript of the interview
- Agree to individual member checking of the study

Here are some sample questions:

- How did your experience working in IT match your original career aspirations?
- What interpersonal relationships (role models or mentors) or networks were helpful or noticeably absent during your IT work?
- Describe your non-work and family roles and how did those affect your IT career?

Voluntary Nature of the Study:

This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind during or after the study. You may stop at any time.

Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as becoming fatigued or feeling emotional. Being in this study would not pose risk to your safety or wellbeing.

Sharing your experience as a woman who left IT may benefit the community of women in IT through a greater understanding of that experience. Corporations and government agencies may also gain from understanding women's experience in IT. Your contributions to this study may help to develop policy helpful to women.

Payment:

There is no payment for being in this study. A thank you gift of a \$5.00 coffee shop gift card will be offered to each participant.

Privacy:

Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by both electronic data and physical data procedures. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via xxxxxxxx@gmail.com. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 1210. Walden University's approval number for this study is 01-23-14-0102678 and it expires on January 22, 2015. The researcher will give you a copy of this form to keep.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Printed Name of Participant

Date of consent

Participant's Signature

Researcher's Signature

Curriculum Vitae

Susan F. Way

EDUCATION**PhD candidate, Organizational Psychology**, Walden University **Expected 2015**

Coursework completed includes: Statistics I & II (SPSS), Qualitative Research Methods, Tests & Measurement, Leadership Coaching, Leadership Development, Organizational Behavior, Personnel Psychology, Vocational Counseling, Ethics, Cultural Issues in Organizations

Dissertation: "Midcareer Women Leaving Information Technology: An Examination of the Phenomenon"

Master of Software Design & Development (MSDD), **1995**
University of St. Thomas, St. Paul, MN

Bachelor of Science, Computer Science
St. Cloud State University, St. Cloud, MN **1983**

PROFESSIONAL EXPERIENCE

Career Counselor – Capella University, Minneapolis, MN **2015 – Present**
Provide job search advice and teach job search skills to undergraduate students through university Career Services Center.

Consultant – RW Resources, LLC. **2013 - Present**

- Assisted Start-up Company become profitable in first year by developing and implementing business approach and processes, helping job-seeking clients advertise their skills through social media.
- Interviewed executive level clients and wrote resumes and LinkedIn profiles.
- Provided IT recruiting services.

Consultant – Right Management, Edina, MN **2008 - 2013**
Contributed to Outplacement and Organizational Development practices in project consulting role.

- Facilitated centralization of training for large national client by delivering standardized Leadership Development courses at locations across US.
- Guided candidates through job search by facilitating classroom sessions on job search strategy, Resume Writing, Networking, Interviewing, and Negotiation Skills.
- Effectively coached clients based on results from The Birkman and other proprietary assessments.

- Marketed hundreds of professional candidates by writing/editing effective resumes.

Staffing Consultant – Robert Half Consulting, Bloomington, MN 2007 - 2008

Filled 12 open IT positions by partnering with VP of Information Technology at Fortune 100 Corporation, understanding talent needs and doubling size of department.

HR Manager / Recruiter – Sogeti USA, LLC, Richfield, MN 2005 - 2007

Grew size and effectiveness of branch by recruiting IT professionals. Managed selection process, and handled talent management needs from on boarding, developing and promoting, to termination.

Solutions Manager – Best Buy, Richfield, MN 2000 – 2005

Implemented executive-sponsored initiatives across multiple business areas, creating cost savings, improving processes, and meeting retail customer segment needs.

- Reduced costs to company by tens of millions of dollars by building relationships with Merchandise Buyers and Sourcing Managers and partnering with cross-functional marketing, finance, and IT team, advancing and managing new B2B reverse auction process.

Staffing Manager - Keane, Edina, MN 1998 - 2000

Maximized organizational revenue and talent development by implementing and managing new staffing process, guiding all consultant placement decisions for branch of up to 250 employees.

- Influenced employee selection decisions by interviewing all consultant candidates.
- Improved marketability of consultants by delivering training in Behavioral Interviewing, Interviewing Skills, and Resume Writing.
- Streamlined recruiting, staffing, and training plan development process by developing standard technology skill profiles / job descriptions.
- Hired 15 consultants in first three months as interim Recruiter.
- Delivered one-on-one performance and career development coaching to all branch consultants.
- Provided > \$100,000 of technical training to consultants by partnering with local community college and grant from the State of MN.
- Increased accuracy and efficiency of staffing decisions by leading design and implementation of automated Staffing System database.

Professional Development Manager - Keane, Edina, MN 1996 - 1998

Established new professional development process and counseled all consultants on career development, training opportunities, and consulting skills.

- Strengthened talent pool by conducting candidate management interviews and influencing recruiting and hiring decisions.

- Improved marketability and success of consultants by developing training materials and facilitating classes on Performance Management, Team Dynamics, and Keane's Productivity Management methodology.
- Advanced employee engagement by writing and conducting up to 80 performance appraisals annually with 100% on-time delivery.
- Influenced promotion decisions and salary planning.

Principal Consultant - Keane, Bloomington, MN

1991 – 1996

Provided Information Technology consulting services to multiple clients including project management, application development, maintenance, and system support.

Software Developer - Various Companies, Twin Cities, MN

1984 – 1991

Coded, tested, and implemented computer programs in multiple languages and various platforms for insurance, software development, and educational software companies.