EXPLAINING BURNOUT: A MIXED METHOD INVESTIGATION OF INFORMATION TECHNOLOGY WORKERS

by

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Abstract

The research presented in this dissertation utilized both qualitative and quantitative strategies to identify factors that predict burnout of Information Technology workers. The first phase of the study included meetings with two focus groups to determine potential factors impacting emotional exhaustion, cynicism, and professional efficacy (the three dimensions of burnout). The second phase of the study utilized a questionnaire developed to assess factors indicated in the literature as potential correlates of burnout in addition to the factors implicated by the focus groups. Nearly 97% of the surveys distributed to 186 IT workers in industries including health care, software, education, and manufacturing were completed and returned. The findings of the research indicate that organizational politics and menial tasks interfering at work are most strongly related to burnout. Role ambiguity, role conflict, job security, quantitative work overload, having reasonable promotion prospects, having a manager who understands the work, and feeling fairly rewarded are all significantly related to burnout as well.

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The thanks to my family would not be complete without an expression of the appreciation and admiration I have for my parents, Dave and Diane Schwarz, who exemplify working hard with good humor.

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Finally, I would like to dedicate my dissertation to my grandmother, Marian LaRee Sullivan Schwarz. She's a model of spirit like few ever are so blessed to have.

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

Burnout, the condition that arises when prolonged stress causes energy to turn to exhaustion, involvement to turn to cynicism, and efficacy to become a lack of accomplishment (Maslach & Leiter, 1997), is a pervasive phenomenon in organizations (Golembiewski, Boudreau, Sun, & Luo, 1998). Burnout has serious dysfunctional ramifications, meaning substantial costs for organizations and individuals (Cordes & Dougherty, 1993). In their metanalysis of burnout literature, Lee and Ashforth (1996) concluded that burnout is significant in explaining a wide range of behaviors and attitudes in stressful work environments. Other researchers have gone so far as to suggest that burnout is a centroid - a dimension related to a very broad array of other variables of social and managerial relevance (Golembiewski, Boudreau, Munzenrider, & Luo, 1996).

Although burnout was originally studied in human service professions, the phenomenon has been more recently explored in other fields, including the field of information technology (Sethi, Barrier, & King, 1999). Research has shown that information technology (IT) workers are succumbing to morale problems (McGee, 2003), which may not be surprising given recent trends in the IT industry. In the period from 2001 through 2004, workers in the IT industry experienced substantial turmoil, as over 500,000 IT workers lost their jobs due in part to the "dot-com bubble" burst, organizational cost-cutting, shrinking budgets, a struggling economy, and increased pressure to satisfy shareholders each quarter (Pfannestein & Tsai, 2004). More recently, the industry has rebounded and is in fact now projected to be the fastest growing sector in the economy between 2002 and 2012 by the U.S. Department of Labor Employment and

Training Administration (2006). However, the outsourcing of IT jobs looms large in the minds of many IT workers and is deemed by most to be an irreversible trend, with some experts predicting 25% of all IT jobs will be outsourced by 2010 (McFarlan, 2005).

It appears that this tumultuous environment has been conducive to burnout. It has been reported that 71% of IT executives surveyed acknowledge that burnout is a serious problem within their organizations (McGee, 2003). Jobs in the IT industry are frequently very intellectually demanding (Glass, Vessey & Conger, 1992) and often require constant learning (Sonnentag, Brodbeck, Heinbokel, & Stolte, 1994), and when demands of the job consistently exceed the resources of the workers, exhaustion can occur. The seriousness of the burnout phenomenon is well documented and has been shown to have several serious negative consequences, including job dissatisfaction and turnover, deterioration of relationships, physical and mental illness, and decreased work performance, among others. The current IT environment and the suggested prevalence of burnout of IT workers indicate the necessity of a study to determine the factors that predict the phenomenon in these workers, thus enabling practitioners and researchers to focus on detection and prevention.

Purpose and Significance of the Study

The negative consequences of burnout provide clear evidence of the importance of avoiding burnout in organizations. Despite the high percentage of managers concerned with the problem of burnout within the IT workers in their organizations, research has not sufficiently demonstrated the correlates of burnout in this population. It is reasonable to assume that if IT managers were able to predict burnout, they would be able to take action to prevent it. In addition, the present research effort addresses limitations of existing burnout literature.

Specifically, although Sethi et al. (1999) investigated correlates of burnout of IT workers, very few factors were considered. Other research of burnout of IT workers is relatively scarce. In addition, though several studies in areas outside IT explore possible antecedents of burnout (Fogarty, Singh, Rhoads, & Moore, 2000; Yashwant Advani, Jagdale, Kumar Garg, & Kumar, 2005), a model to predict burnout has not been created. The present study aims to fill these gaps.

Research Questions

This study will seek to answer the following questions:

1. What organizational and job factors best predict burnout of IT workers?
2. What individual factors best predict burnout of IT workers?

Research Hypotheses

The literature overwhelmingly supports the conceptualization of burnout as a three-component construct. Emotional exhaustion, cynicism (also known in burnout literature as *depersonalization*), and feelings of professional inefficacy (also known in burnout literature as *lack of personal accomplishment*) have been repeatedly demonstrated to be the three dimensions of burnout, and studies of burnout consistently consider the phenomenon by measuring these three variables.

Attempts to simplify the diagnosis of burnout by creating a one-dimensional burnout instrument have failed. Enzmann, Schaufeli, Janssen, and Rozeman (1998) examined a modified version of a burnout measure and found the single component conceptualization to insufficiently capture crucial aspects of burnout. In fact, the researchers stated, "It seems to be quite impossible to achieve a one-dimensional burnout measure on the basis of a multidimensional burnout construct." Other researchers report inadequate validity of a two-dimensional burnout

construct (Schaufeli & Van Dierendonck, 1993) while the validity of the three-dimensional construct has been convincingly demonstrated (Golembiewski & Munzenrider, 1988; Koeske & Koeske, 1989; Lee & Ashforth, 1990; Schaufeli & Van Dierendonck, 1993). Therefore, instead of hypothesizing, for example, that a factor (e.g., hours worked) is related to burnout, the researcher instead hypothesizes that the factor is related to emotional exhaustion, that the factor is related to cynicism, and that the factor is related to professional inefficacy.

Because several potential factors are strongly indicated by the literature, independent variables for each of these factors will be considered. Building upon the work of Sethi et al. (1999), this study will consider role conflict and role ambiguity as factors in driving burnout among IT workers. In addition, other commonly cited antecedents of burnout including lack of autonomy, work overload, organizational politics, and perceived effort-reward ratio will also be tested. The influence of these independent variables on each of the components of burnout yields the following 21 hypotheses, each stated here as the null hypothesis:

H1a: There is no difference in the level of emotional exhaustion in IT workers who experience role ambiguity and IT workers who do not.

H1b: There is no difference in the level of cynicism in IT workers who experience role ambiguity and IT workers who do not.

H1c: There is no difference in the level of professional efficacy in IT workers who experience role ambiguity and those who do not.

H2a: There is no difference in the level of emotional exhaustion in IT workers who experience role conflict and IT workers who do not.

H2b: There is no difference in the level of cynicism in IT workers who experience role conflict and IT workers who do not.

H2c: There is no difference in the level of professional efficacy in IT workers who experience role conflict and those who do not.

H3a: There is no difference in the level of emotional exhaustion in IT workers who experience quantitative work overload and IT workers who do not.

H3b: There is no difference in the level of cynicism in IT workers who experience quantitative work overload and IT workers who do not.

H3c: There is no difference in the level of in IT workers who experience quantitative work overload and those who do not.

H4a: There is no difference in the level of emotional exhaustion in IT workers who experience qualitative work overload and IT workers who do not.

H4b: There is no difference in the level of cynicism in IT workers who experience qualitative work overload and IT workers who do not.

H4c: There is no difference in the level of professional efficacy in IT workers who experience qualitative work overload and those who do not.

H5a: There is no difference in the level of emotional exhaustion in IT workers who experience autonomy and IT workers who do not.

H5b: There is no difference in the level of cynicism in IT workers who experience autonomy and IT workers who do not.

H5c: There is no difference in the level of professional efficacy in IT workers who experience autonomy and those who do not.

H6a: There is no difference in the level of emotional exhaustion in IT workers who experience organizational politics and IT workers who do not.

H6b: There is no difference in the level of cynicism in IT workers who experience organizational politics and IT workers who do not.

H6c: There is no difference in the level of professional efficacy in IT workers who experience organizational politics and those who do not.

H7a: There is no difference in the level of emotional exhaustion in IT workers who fairly rewarded for their efforts and IT workers who do not.

H7b: There is no difference in the level of cynicism in IT workers who feel fairly rewarded for their efforts and IT workers who do not.

H7c: There is no difference in the level of professional efficacy in IT workers who feel fairly rewarded for their efforts and those who do not.

In addition to these hypotheses, others will be developed indicating the expected influence of the potential factors identified by the focus groups.

Definition of Terms

The U.S. Department of Labor (n.d.) defines *IT workers* as those who design, manufacture, operate, maintain, or repair IT products. For the purposes of this study, IT workers will be considered, as they are by the Information Technology Association of America (n.d.), as members of eight career clusters: programming and software engineering, technical support, database development and administration, enterprise systems, web development and administration, network design and administration, technical writing, and digital media.

Definition of Variables

Emotional exhaustion occurs in an individual when that individual feels completely drained and loses control of his or her emotions (Maslach & Jackson, 1981). Emotional exhaustion has physical, emotional, intellectual, and social elements. In this study, emotional exhaustion will be measured by the emotional exhaustion subscale of the MBI-GS, addressed in questions 24, 25, 26, 27, and 29 on the survey created for the present research.

Cynicism is defined by Mirriam-Webster Online (2006) as a contemptuous distrust of human nature and motives. In this study, cynicism refers to the indifferent attitude of a worker as they depersonalize their work. In burnout literature, the term cynicism is used interchangeably with *depersonalization.* In this study, emotional exhaustion will be measured by the cynicism subscale of the MBI-GS, addressed in questions 31, 32, 36, and 37 on the survey created for the present research.

Professional inefficacy refers to the worker's feeling that he or she is failing and/or having few feelings about his or her accomplishments and/or competence. In burnout literature, professional inefficacy is used interchangeably with the term *lack of personal accomplishment*. In this study, inefficacy will be measured by the professional efficacy subscale of the MBI-GS, addressed in questions 28, 30, 33, 34, 35, and 38 on the survey created for the present research.

Role ambiguity, discussed in Chapter 2, will be assessed through a Likert-scale rating on question 11 on the survey created for the present research.

Role conflict, discussed in Chapter 2, will be assessed through a Likert-scale rating on question 12 on the survey created for the present research.

Qualitative work overload, discussed in Chapter 2, will be assessed through a Likert-scale rating on question 10 on the survey created for the present research.

Quantitative work overload, discussed in Chapter 2, will be assessed through a Likert-scale rating on question 16 on the survey created for the present research.

Organizational politics is a term discussed in Chapter 2. Organizational politics will be assessed through a Likert-scale rating on question 17 on the survey created for the present research.

Autonomy, discussed in Chapter 2, will be assessed through a Likert-scale rating on question 13 on the survey created for the present research.

Overview of Method

A correlational study using a mixed methodology will be used to address the research questions. The first phase of the research will be qualitative and will involve in-depth interviews with two focus groups of IT workers. The purpose of these interviews will be to determine the factors that these workers deem most important to their work as IT professionals. These factors will become independent variables researched in the second phase of the study, which will be quantitative and will rely on survey methodology for data collection. The sample will consist of IT workers in organizations randomly chosen from the health care industry, the education industry, the software industry, and other industries in the La Crosse, Wisconsin area.

Assumptions and Limitations

Independent and dependent variables of the present research are measured through a self-report methodology. Therefore, common method bias is a concern. To reduce the possibility of common method bias, face-to-face interviews will be conducted with survey respondents during

the pilot study. This triangulation will offer support for the validity of the self-reported burnout measure.

The key assumption of this study is that burnout can be measured using a self-report method. Can individuals recognize burnout (or specifically, exhaustion, cynicism, and lack of personal accomplishment) in themselves? Can a self-reported questionnaire adequately diagnose the burnout phenomenon in workers? Burnout researchers have addressed these questions.

Validity of the Maslach Burnout Inventory (MBI) and its variation, the Maslach Burnout Inventory – General Survey (MBI-GS), have been demonstrated and verified by researchers. Maslach and Jackson (1981) showed convergent validity by finding substantial evidence of correlation between scores from the MBI and three other measurements. In another study on burnout of Dutch nurses, Schaufeli and Van Dierendonck (1993) clearly confirmed the three-component structure of the MBI and that the MBI is "an adequate self-report measure that can be employed to assess the level of burnout".

Proof of the validity of the MBI to measure burnout of workers is perhaps most persuasive if verified by measures that do not rely on self-reporting. Indeed, external validation of the personal experience of burnout also has been shown. After administering the MBI questionnaire to the sample population, Maslach and Jackson (1981) asked 40 mental health workers to provide anonymous behavioral evaluation of a designated co-worker who had completed the MBI. The observers' ratings and the individuals' scores were significantly correlated for the emotional exhaustion and cynicism subscales. The correlation of observers' and individuals' scores for the professional efficacy subscale failed to reach statistical significance. However, noting a comparative lack of research on the validity of the lack of

professional efficacy component, Densten (2001) demonstrated the content validity of this dimension through exploratory factor analysis and examination of the clarity of each item of the MBI. Additional confirmation of the validity was provided when the burnout scores resulting from the MBI correlated as hypothesized with various outcomes or reactions, such as job dissatisfaction, turnover intention, difficulty with interpersonal relationships, and several others.

Content validity indicates that a measure provides an adequate reflection of the topic under study, and construct validity ensures that a measure conforms to predicted correlations of other theoretical propositions (Cooper & Schindler, 2003). Use of the MBI as the measurement instrument of burnout is almost universal (Schaufeli & Van Dierendonck, 1993). The content and construct validity have clearly been demonstrated, and thus it can be reasonably assumed that the self-report methodology utilizing the MBI is adequate for studying burnout in IT workers.

Summary

This study sets forth to determine organizational and individual factors that predict burnout of IT workers. The conceptual framework for the study has been developed from the investigations of correlates of burnout among IT workers done by Sethi et al. (1999) and other researchers who have built upon the work of Maslach and Jackson (1981).

The study is presented in five chapters. The first chapter presents an overview of the study. The second chapter contains a review of relevant literature addressing the burnout construct, the consequences of burnout, the antecedents of burnout, burnout among IT workers, and the current IT environment. Chapter three contains a detailed description of the

methodology. Chapter four presents the analysis of the data collected, and chapter 5 includes the conclusions drawn from the analysis.

CHAPTER 2. LITERATURE REVIEW

Introduction

Though definitions and conceptualizations of burnout have varied over time, burnout literature does point to some that are commonly accepted. Herbert Freudenberger (1974) first defined *burnout* as the extinction of motivation or incentive, especially where one's devotion to a cause or relationship fails to produce the desired results." Since Freudenberger coined the term in the 1970s, burnout has been predominantly conceptualized as a multi-component construct. A commonly accepted model holds that the phenomenon is characterized by three interrelated components (Maslach & Jackson, 1986). The first component is emotional exhaustion, the second is depersonalization, and the third component is inefficacy, also referred to as diminished personal accomplishment. Emotional exhaustion is a state of depleted energy caused by excessive psychological and emotional demands, depersonalization refers to feelings of callousness and cynicism, and inefficacy is characterized by a tendency to evaluate oneself negatively (Jackson, Turner, & Brief, 1987).

Researchers do not universally agree about the accuracy of the conceptualization of burnout as this three-part construct. Lee and Ashforth (1996) contested that emotional exhaustion and depersonalization develop in parallel and together lead to diminished professional efficacy. Other researchers have argued that depersonalization and diminished professional efficacy are actually consequences of emotional exhaustion, not part of the burnout construct itself (Moore, 1997).

Several studies have confirmed the order of the phases of burnout (Cordes & Dougherty, 1993; Koeske & Koeske, 1989; Leiter, 1991). That is, in order to cope with emotional exhaustion, individuals withdraw and depersonalize others, causing a loss of personal commitment to their work relationships, eventually resulting in feelings of declining competence and diminished personal accomplishment (Leiter & Maslach, 1988). The work of Golembiewski (1996) toward the development of a phase model of burnout also supports the isolation of the emotional exhaustion component. If cynicism and feelings of inefficacy are not viewed as components of the burnout construct, then they are considered the first two consequences of burnout. If cynicism and feelings of inefficacy are not viewed as components of the burnout construct, then they are considered the first two consequences of burnout.

Consequences of Burnout

The consequences of burnout are diverse. The following paragraphs describe the impact of burnout on employees and organizations.

Psychosomatic complaints, such as headaches, muscle tension, gastrointestinal symptoms, respiratory symptoms, cardiac symptoms, dizziness, fainting, and others, signal that the body is trying to deal with environmental demands (Pennebaker, 1982). Therefore, the exhaustion that can result from prolonged stressful situations may cause deteriorated health and well-being (De Dreu, Van Dierendonck, & Dijkstra, 2004). Burnout has been associated with mental health issues such as depression, insomnia, and anxiety (Quick, Quick, Nelson, & Hurrel, 1997). Looking at the components of the burnout construct, emotional exhaustion and depersonalization specifically have been associated with physiological and psychological strain and helplessness (Lee & Ashforth, 1990). Maslach, Schaufeli, and Leiter (2001) explain that

emotional exhaustion is a better predictor of stress-related health consequences than the other two components and that the physiological consequences parallel those found with other indices of prolonged stress. Further examination of the separate components of burnout reveals that exhaustion is strongly related to future diseases of the circulatory system, while cynicism shows a substantial correlation with future diseases of the digestive system (Toppinen-Tanner, Ojajärvi, Väänänen, Kalimo, & Jäppinen, 2005).

Burnout has implications for a variety of interpersonal relationships as well. For example, empirical research supports the link between burnout and deterioration of social and family relationships (Burke & Deszca, 1986; Jackson & Maslach, 1982). Just as individuals experiencing burnout withdraw emotionally from their jobs, they also withdraw from their friends and reduce socializing (Cordes & Dougherty, 1993). For employees that deal directly with clients, an interpersonal consequence of burnout is that they avoid or decrease contact with their clients (Maslach & Jackson, 1985), sometimes by taking longer breaks and lunch periods (Maslach & Pines, 1977). The tendency of burned-out employees to withdraw from others is likely to hinder constructive methods of dealing with conflicts; therefore, the conflicts may intensify (De Dreu et al., 2004).

Serious attitudinal consequences also result from job burnout. Research has shown that workers suffering from burnout tend to regard the organization as an adversary and consequently withdraw emotionally from it (Lee & Ashforth, 1996). Further, burnout has been identified as a major contributor to poor morale (Barak, Nissly, & Levin, 2001). Schaufeli and Enzmann (1998) observed that individuals suffering from burnout become hypercritical of the organization and

distrust peers and colleagues. Perhaps the most important attitudinal consequence of burnout, though, is job dissatisfaction.

Job satisfaction has been defined as the result of an employee's assessment of the work environment's fulfillment of the employee's needs (Dawis & Lofquist, 1984). Literature firmly establishes that job burnout negatively impacts job satisfaction (Maslach, 1982b; Wolpin, Burke, & Greenglass, 1991). In fact, the association between job burnout and job satisfaction has been shown to be so strong that some researchers speculated that the two concepts were manifestations of the same underlying construct, rather than distinguishable distinct phenomena (Maslach & Schaufeli, 1993; Tsigilis, Koustelios, & Togia, 2004). (Tsigilis et al. later demonstrated the discriminant validity of the two constructs.)

Burnout's impact on job satisfaction has been shown empirically in populations including salespersons (Low, Cravens, Grant, & Moncrief, 2001; Sand & Miyazaki, 2000), accountants (Fogarty et al., 2000), student support services personnel (Brewer & Clippard, 2002), librarians (Tsigilis et al., 2004), and others (Burke & Greenglass, 1995). A theoretical argument for this link between burnout and job satisfaction is that because burnout is the outcome of an individual's evaluation that the demands of the job exceed his or her resources, the same evaluation would affect the individual's psychological well being on the job, including job satisfaction (Fogarty et al., 2000). Looking specifically at the components of the burnout construct, high levels of emotional exhaustion are correlated with low levels of job satisfaction, and feelings of personal accomplishment are positively correlated with job satisfaction (Brewer & Clippard, 2002; Koeske, Kirk, Koeske, & Rauktis, 1994; Maslach, Jackson, & Leiter, 1996).

Depersonalization also has been shown to correlate with job satisfaction (Belicki & Woolcott, 1996), but other studies have failed to find such a correlation (Brewer & Clippard, 2002).

Another potential attitudinal consequence of burnout is decreased organizational commitment, which may be described as the intensity of an employee's attachment to, and acceptance of, an organization and its goals and values (Mowday, Porter, & Steers, 1982), or as the employee's level of involvement and dedication to the organization (Porter, Steers, Mowday, & Boulian, 1974). Both of these definitions reveal the importance of organizational commitment. When an employee feels strongly committed to the organization's social and psychological community, that employee is more likely to stay with the organization (Wright & Hobfall, 2004). Jackson et al. (1987) demonstrated that all three components of burnout significantly predicted organizational commitment, although some researchers consider burnout a mediating variable between certain factors, such as role ambiguity and job satisfaction, and organizational commitment (Low et al., 2001).

As was mentioned above, workers suffering from burnout withdraw emotionally from the organization. Coping with emotional exhaustion through withdrawal may be manifested as absenteeism, physical isolation, and extended breaks (Gaertner, Hemmeter, & Pitman, 1987; Hellriegal & White, 1973). Studies have shown that some employees deal with overload and exhaustion by being absent from work (Stack, 2003). In a longitudinal study on the effect of burnout on future medically certified sick leaves, Toppinen-Tanner et al. (2005) showed that burnout is a significant risk factor for future absences, especially for absences for mental and behavioral disorders. In addition, an employee may seek to self-medicate through abuse of alcohol and drugs, which may serve to intensify the problem (Maslach, 1982a).

Another option for an employee seeking to withdraw is to leave the organization. Commonly accepted turnover theories regard voluntary turnover as a process initiated by job dissatisfaction (Lee, Mitchell, Wise, & Fireman, 1996). Therefore, it is no surprise that an abundance of research has explored the link between burnout (a cause of job dissatisfaction) and turnover in many professions (Firth & Britton, 1989; Jackson, Schwab, & Schuler, 1986). In fact, burnout is indicated as one of the strongest predictors of turnover (Barak et al., 2000). If an individual reaches a point where coping mechanisms are insufficient to handle the stressors, the individual may feel that leaving the job is the only coping mechanism left to reduce the strain (Goodman & Boss, 2002). Van Dam (2005) demonstrated that employees who felt they were being rewarded favorably for their effort reported greater job satisfaction and greater affective commitment and subsequently felt less inclined to leave the organization. As an individual's feelings of commitment are likely to be impacted by the second component of burnout (depersonalization or detachment), and because burnout has been shown to negatively affect job satisfaction, an individual experiencing burnout is more likely to consider turnover as a coping mechanism.

Moreover, a study that explored the relationship between burnout and turnover using the phase model of the burnout construct found that employees that leave are in significantly higher phases of burnout than those who stay in the organization (Goodman & Boss, 2002). Specifically, the same study found that the more advanced burnout phases were more likely to be associated with employees who left voluntarily, not those who were terminated. Golembiewski and Boss (1992) theorize that the depersonalization that some people use as a coping mechanism

may be deemed inappropriate by management, leading to termination or causing tension fueling a desire to leave.

Burnout is a serious concern whether or not workers leave their jobs, since the performance of those who choose to stay despite their burnout may suffer (Glisson & Durick, 1988). Researchers speculate that many of the consequences discussed above ultimately result in decreased performance (Low et al., 2001; Maslach et al., 2001; Wright & Hobfall, 2004). For example, in order to cope with burnout, employees tend to mitigate the loss of their remaining resources by "lowering their morale, reducing their commitment to the organization and decreasing their performance efforts" (Wright & Hobfall, 2004). The findings of several studies support the notion that burnout negatively impacts performance (Parker & Kulik, 1995; Wright & Cropanzano, 1998), as exhaustion may diminish the energy available to put into work and can entrap employees in a negative spiral in which they do not seek help or try to improve their situation (Bakker, Demerouti, & Verbeke, 2004). However, one of the biggest questions remaining in the research of burnout is about the nature of this relationship between burnout and performance. Some studies that measured all three components of burnout found no relationship between performance and depersonalization or diminished personal accomplishment (Parker & Kulik, 1995; Wright & Bonett, 1997), while others revealed surprising positive relationships between burnout and performance (Lazaro, Shinn, & Robinson, 1985; Randall & Scott, 1988).

Golembiewski et al. (1996) posit that burnout develops differently in different people, and certainly the consequences of burnout vary as well. In summary, whatever the consequences, burnout certainly has a negative impact on an organization and its workers. As De

Dreu et al. (2004) state, "To put it bluntly, an individual under enduring stress is not a very effective employee, and is certainly not fun having around."

Antecedents of Burnout

Factors that drive burnout may be categorized several ways. This investigation first contains a description of organizational factors, including factors related to job demands and factors related to job resources. Although research has shown that antecedents to burnout tend to be situational factors rather than individual factors (Cherniss, 1993; Maslach & Schaufeli, 1993), individual factors presented in the literature are also explored.

Organizational Factors

Perhaps the most commonly cited antecedent to burnout is work overload (also referred to as role overload). Classified as either quantitative or qualitative, work overload is the result of having too many things to do in a given time period (Bacharach, Bamberger, & Conley, 1991). Quantitative overload is the perception of too much work to complete in the given timeframe, and qualitative overload occurs when the job requirements exceed skill level (Sanders, Fulks, & Knoblett, 1995). Early on, researchers determined that excessive prolonged work demands drained emotional resources and energy and caused emotional exhaustion (Maslach, 1982a), the first of the three components of burnout. Researchers later confirmed that workload and time pressure are consistently and strongly related to job burnout (Maslach, Schaufeli, & Leiter, 2001). These findings parallel those in other empirical research that has shown an association between quantitative and qualitative work overload and a variety of physiological, psychological, and behavioral strain symptoms (Beehr & Newman, 1978; Miller & Ellis, 1990). If not managed properly, work overload may lead to stress, fatigue, accidents, exhaustion, depression, and other

negative consequences (Fong & Kleiner, 2004). Maslach, Schaufeli, and Leiter described the effect of work overload on the exhaustion and cynicism components of burnout; that is, the coping strategy often used to manage exhaustion caused by work overload is to distance oneself from one's work and develop an indifferent or cynical attitude.

Role conflict and role ambiguity are two more oft-cited antecedents of burnout. As described by Rizzo, House, and Lirtzman (1970), role conflict occurs when an employee perceives a discrepancy between expectations conveyed by different sources, while role ambiguity occurs when an employee is uncertain about expectations. Early research established that role conflict and ambiguity independently have a direct causal relationship with burnout (Jackson, 1983), and subsequent research has supported this finding in a variety of populations including salespeople (Low et al., 2001), school counselors (Butler & Constantine, 2005), social workers (Um & Harrison, 1998), information systems employees (Sethi et al., 1999), and others (Bacharach, Bamberger, & Conley, 1991). However, different professions appear to be impacted by these two factors to different degrees; Kirk-Brown and Wallace (2004) found in their study on workplace counselors that only role ambiguity (and not role conflict) was a significant predictor of burnout.

The factors already mentioned (work overload, interpersonal conflict, role conflict and ambiguity) have been considered by researchers to be major sources of job demand (Leiter, 1991). These demanding aspects of work lead to persistent overtaxing and eventually to exhaustion (Houkes, Janssen, de Jonge, & Bakker, 2003). Because stressful demands at work may not be avoidable, workers may rely on various coping resources to reduce the propensity for

burnout. Examination of the consequences of a lack of these resources also reveals antecedents of burnout. Organizational factors pertaining to job resources are discussed next.

A lack of autonomy, also described as a lack of participation in decision-making, has been shown to cause worker exhaustion (Jackson et al., 1986; Maslach et al., 2001; Pines, Aronson, & Kafry, 1981). Jackson et al. (1987) link non-participatory decision making to depersonalization, the second of the three components of burnout. A lack of autonomy implies an uncontrollable environment, and when employees feel the environment is sufficiently uncontrollable, they resort to depersonalizing their relationships (Jackson et al., 1987). Cordes and Dougherty (1993) confirmed that employees who work in impersonal, bureaucratic, rigid, or controlling work environments experience a higher level of burnout.

Interpersonal conflict has also been identified as a strong predictor of burnout. In fact, some researchers have asserted that interactions with co-workers are the single most important source of job burnout (Gaines & Jermier, 1983). According to Leiter and Maslach (1988), interpersonal contacts are often negative because of conflicts stemming from organizational policies, conflicting personal values, or disagreements about how the job should be carried out. The same researchers further found that these negative contacts are linked to increased emotional exhaustion, depersonalization, and decreased professional efficacy – all three components of burnout. Other researchers have argued that poorly managed conflict can have long-term negative consequences for individual health and well being, producing feelings of burnout (De Dreu et al., 2004). A specific type of interpersonal conflict within an organization is organizational politics, a term used to identify actions that are manipulative and self-serving (Ferris & Kacmar, 1992). Research has shown that if employees perceive a high level of

organizational politics, the employees are more likely to distance themselves psychologically from the organization and burn out (Yashwant Advani et al., 2005).

Although interpersonal conflict has been recognized as a factor driving burnout, there are positive aspects of interpersonal contact as well, including friendship, help, and comfort (Leiter & Maslach, 1988). The literature indicates that social support positively impacts individuals' well being in two ways (Cherniss, 1980). First, support is frequently indicated as a buffer between job stress and the influences of stressful events by helping to re-evaluate the potential harm of a situation or by enforcing the belief that others will provide the necessary resources to cope with the situation (Cohen & Wills, 1985). Second, support is positively associated to psychological and physical health, regardless of the presence of job stressors (Dignam, Barrera, & West, 1986). However, as described above, social contact is not always supportive or positive. There is strong and consistent evidence that lack of social support is a factor contributing to burnout (Dignam & West, 1988; Maslach et al., 2001). The conservation of resources theory holds that people try to maintain their valued resources, and when resources are lost or threatened, stress may occur (Hobfoll & Freedy, 1993; Leiter, 1993). Burnout may develop from the prolonged stress created in trying to replace a lost or threatened resource like social support (Houkes et al., 2003).

Maslach et al. (2001) differentiated between the effects from a lack of social support from coworkers and a lack of support from supervisors. Specifically, they found that a lack of support from supervisors is even more strongly linked to burnout than is a lack of support from peers. The authors point out that a cyclical relationship may exist; workers who have depersonalized their work relationships may consequently receive lower performance reviews,

creating an unpleasant encounter and increasing stress, increasing the likelihood of burnout and further depersonalization.

Unsupportive supervisors play an important role in causing burnout; other management issues can be factors driving burnout as well. For example, a lack of feedback from supervisors is linked to all three burnout components (Maslach et al., 2001). This reflects the effort-reward balance related to burnout (Schaufeli & Enzmann, 1998; Pines et al., 1981). In one of the relatively few longitudinal studies of burnout, Toppinen-Tanner, Kalimo, and Mutanen (2002) found that burnout might result when a worker feels insufficiently recognized by a supervisor, especially in a blue-collar profession. It has been argued that workers meeting higher job demands is dependent upon a perception of a fair ratio between effort spent and reward received (Janssen, 2000), so stress results from perceived unfairness.

Another resource that has been shown to be a factor in job burnout is organizational trust. In exchange for their commitment to the organization, employees expect to receive some assurance of security (Kulnert & Vance, 1992). If an employee does not believe that the organization will uphold its end of this implicit psychological contract, the deficiency of trust may create an environment in which burnout tendencies thrive. Kalbers and Fogerty (2005) have confirmed that the trust construct has a significant impact on two of the components of burnout - depersonalization and emotional exhaustion.

Individual Factors

As was previously mentioned, factors driving burnout tend to be situational rather than individual. However, many researchers have proposed that burnout is a product of both

individual and environmental factors (Leiter & Maslach, 1988), and studies have implicated several individual demographic or personality factors as contributors to burnout as well.

Kalbers and Fogerty (2005) assert that locus of control, a construct developed by Rotter (1966) to differentiate between individuals who feel they are in charge of the course of their lives (said to have an internal locus of control) and individuals who believe their destiny is controlled by conditions and events outside of their control (said to have an external locus of control), is the single most important antecedent of the three burnout dimensions. An individual with an external locus of control tends to feel more hopeless and unable to overcome adversity (Luzzo & Ward, 1995) and is subsequently more vulnerable to stress (Clarke, 1995).

Although the previous discussion of social support focused on support from within the organization, support from outside the organization (e.g., from home or religious affiliation) is another resource to be considered. Psychological and emotional support from family and friends outside of the workplace has been shown to mediate the harmful effects of job stress (Abelson, 1987). Further, some workers experience conflict between work and home in which the role pressures from work and home domains are somehow incompatible (Greenhaus & Beutell, 1985), and there is evidence that this work-home conflict has a strong direct effect on burnout (Bacharach et al., 1991).

Another individual factor contributing to burnout is a discrepancy between employee skills and job expectations. Workers with skills that match the demands of their jobs may avoid burnout by working more naturally within organizationally defined expectations (Lee & Ashforth, 1996). Kalbers and Fogerty (2005) showed that accountants with higher levels of skills

tend to report less of the reduced professional efficacy known to be symptomatic of burnout, but these skills do not appear to shield them from depersonalization or emotional exhaustion.

An individual resource known as coordination expertise can reduce stress in a job. Coordination expertise involves being aware of where expertise is located, recognizing where the expertise's application is necessary, and bringing the needed expertise to bear (Faraj & Sproull, 2000). Due to a lack of coordination expertise, individuals might experience stress because of an absence of understanding between team members or because of their inexperience with certain technologies, for example. A high level of coordination may not only reduce emotional exhaustion and depersonalization, but it also may impact the third component of burnout in that it may have a positive impact on the personal accomplishment of the individual (Yashwant Advani et al., 2005). Therefore, a lack of coordination expertise is counted as a contributor to all three components of burnout.

The impact of a variety of demographic and personality variables has been tested as well. The findings consistently support that these relationships are not as influential as situational factors, and that burnout is more of a social experience than an individual one (Maslach et al., 2001). Age is the demographic factor that has been linked most consistently with burnout, which appears to occur more frequently earlier in one's career (Maslach et al., 2001). Research has shown that stress-prone individuals typically have poor self-esteem (Rosse, Boss, Johnson, & Crown, 1991) and low levels of hardiness (Semmer, 1996). An individual's unmet expectations of what he or she can achieve personally, or of what the organization offers, can also lead to burnout (Jackson et al., 1986). Other research indicates that new employees generally feel higher stress, as age and tenure are both negatively related to stress levels (Sethi, Barrier, & King,

2004). Lau, Yuen, and Chan (2005) demonstrated that among secondary school teachers, age was the strongest predictor of emotional exhaustion and cynicism, while occupational rank was the best predictor for personal accomplishment. However, Lau et al. found that the demographic characteristics examined accounted for a low percentage of total variance, and therefore they also concluded that effects of these factors on teacher burnout might not be salient.

The manner in which an employee responds to stress can also influence burnout. Research suggests that individuals prone to burnout tend to have an avoidant coping style (Semmer, 1996). Sand and Miyazaki (2000) confirm that active coping strategies such as confronting stress or talking about stress will result in lower levels of burnout than inactive coping strategies such as avoiding or ignoring stress. In addition, in one of the rare longitudinal studies on burnout, Carmona, Buunk, Peiró, Rodríguez, and Bravo (2006) investigated the relationship of coping styles and social comparison with levels of burnout. These researchers also found that over time, workers with a direct coping style (characterized by problem-solving behavior through rational strategies) had a decrease in burnout levels and workers with a palliative coping style (characterized by ignoring and avoiding strategies) had an increase in burnout levels.

The Carmona et al. (2006) study also examined the relationship of social comparison and burnout levels. The term *social comparison* describes the situation in which a person relates his or her own characteristics with those of other similar individuals (Carmona et al., 2006). The researchers found that individuals who engage in "upward" comparison (relating themselves to colleagues who are performing more competently than themselves) had lower levels of burnout, and that over time, the individuals who engaged in "downward" comparison (relating themselves

to colleagues who are performing less competently than themselves) had increasing levels of burnout.

Finally, some researchers support the notion that the "best" workers in an organization are the most susceptible to burnout (Pines, 1993) and suggest that only highly motivated people can burn out. Jackson et al. (1987) point out that the key component of burnout, exhaustion, implies a prior state of high arousal, and therefore is most relevant for workers who are very involved in their work.

Burnout in Information Technology Professionals

Researchers have found that burnout exists to a significant degree among technology professionals (Kumashiro, Kamada, & Miyake, 1989; Sethi et al., 1999). In 2004, about three-fourths of 650 companies surveyed reported having morale problems among their IT workers (King, 2004). Kumashiro et al. (1989) demonstrated that software engineers were more stressed than other professionals, and this stress was attributed to the pace of work and overtime requirements. The incidence of burnout of IT workers is critical because retention of IT workers may be more important now than in prior economic expansions, and more difficult to achieve, as there are record numbers of IT workers capable of making a difference in their organizations (Foote, 2006). Foote (2006) goes on to state that IT worker retention strategies have to "reach farther into the organization, be scalable and surgical in focus and sustainable" because IT workers at many levels within the organization are enabling efficient sales, brand promotion, and delivery of value to the customers.

Prior Research of Burnout in IT Workers

A few studies have directly addressed the burnout phenomenon among IT workers. Summaries of the research conducted since 1990 are presented here in chronological order.

In 1990, Polok examined the influence of self-esteem and a variety of situational factors on burnout in a technology firm. The study discovered a significant negative correlation between burnout scores and worker involvement, supervisor support, peer cohesion, autonomy, work pressure, clarity, control, and innovation. A hypothesis investigating a possible correlation between demographic variables and burnout scores was not supported.

In 1994, Sonnentag et al. studied software developers to test the relationships between work stress and control at work and burnout, and to examine the potential moderating effects of social interaction on these relationships. The researcher found significant correlations between burnout and work stress and control at work. However, the data did not support the hypothesis pertaining to the moderating effects of social interaction.

Later, Sethi et al. (1999) tested two potential correlates of burnout in IT workers and found a strong positive correlation of role ambiguity and role conflict with burnout. In 2002, Salanova, Peiro, and Schaufeli explored a possible moderating effect of self-efficacy specificity on burnout. Through an investigation of the effects on job demands and job control, the researchers determined that computer self-efficacy moderated the relationship between job demands and control and levels of the burnout dimensions exhaustion and cynicism (Salanvova et al., 2002).

Current IT Environment

While the previous discussion of the antecedents of burnout applies to workers from all professions, certainly some of the factors discussed are likely to be more influential in the specific population of IT professionals. Unfortunately, industry experts indicate that most organizations do not have a solid understanding of what is involved in IT work or in advancing an IT career (McGee, 2006). Consideration of the current IT environment might reveal those factors that are most relevant to IT professionals.

The current IT environment is characterized by rapid change and increased globalization. Outsourcing and downsizing are two terms used frequently in discussions about the IT industry. The movement of IT jobs to offshore sites has continued unabated since the late 1980s (Ho, Ang, & Straub, 2003). Some market researchers predict that the percentage of U.S. IT services done offshore in 2007 will be twice that of 2003 (Farrell, 2005). In one survey, when asked to identify significant factors in their workplace environment, more than half of IT workers identified budget cuts and increased workload and more than a third identified permanent layoffs and salary and hiring freezes (King, 2004). Workers also reported resentment toward cheerful euphemisms being applied by upper management. For example, layoffs may be referred to as "position migrations", and outsourcing may be called "global sourcing." The result is a reported growing rate of cynicism toward top management (King, 2004), and cynicism is one of the components of burnout. In their book *The Truth about Burnout: How Organizations Cause Personal Stress and What to Do About It*, Maslach and Leiter (1997) directly link between globalization and worker burnout. The authors posit that even the possibility of an organization

moving jobs out of the country (off-shoring) puts pressure on the workers that remain and is damaging to the community of the workplace.

It can be argued that the most influential factor driving burnout among IT workers is work overload. There are several characteristics of the IT industry that contribute to work overload. First, technology workers are nearly always accessible through cell phones and other personal communication devices and are able to work long hours because of virtual private networks that allow access from anywhere, even at home or on vacation. Computers and advanced communications devices, key components of a group of stressors called technostressors, have enabled a work environment in which employees have virtually no reprieve from the rigors and stress of the job (Brillhart, 2004). Sethi, King, and Quick (2004) state that IT employees work an average of 50 hours per week and that almost half work an average of six hours on weekends.

Second, as technology changes at such a rapid pace, time is a factor involved in the implementation of any new information system (Beheshti & Bures, 2000). In fact, it has been shown that the most important factor associated with stress in IT professionals was the pressure to meet specific deadlines (Sethi et al., 2004). Time pressure exacerbates the work overload problem. The fast pace of change in IT creates an environment in which workers must be constantly educating themselves about new and increasingly complex technologies, which also can cause stress (King, 1995). Beheshti and Bures posit that the key to success of an information systems group is taking advantage of new technologies. In addition, innovation is a key element of the industry; researchers have identified the necessity to rapidly transform complex research

and development activities into revenues as one of the main challenges for technology-driven industries (Gugliemi, Lascar, Mastrocola, & Williams, 2006).

Third, the workload of IT employees has increased due to the trend toward downsizing, which requires managers to find a way to maintain work levels with fewer employees. Downsizing increases other potential antecedents to burnout as well. Specifically, downsizing can create employee anxiety and disruptions in productivity, and employees left behind after restructuring may feel resentment and suffer burnout (Beheshti & Bures, 2000). As the workforce dwindles, remaining employees may feel pressured to work long hours, perform tasks in addition to their regular activities, and work at a faster pace (Fong & Kleiner, 2004). Employee anxiety may contribute to the emotional exhaustion component of burnout, disruptions in productivity may contribute to the lack of perception of professional efficacy component, and feelings of resentment may lead to cynicism, another component of burnout.

A related factor that is likely to contribute to the burnout of IT workers is lack of organizational trust. As organizations have undergone dramatic changes such as downsizing and loss of job opportunities to outsourcing, the psychological contract between employee and organization has changed. Cameron, Bright, and Caza (2004) found that downsizing efforts increase productivity only 10% of the time and generally result in lower morale and reduced trust. Organizations are demanding more of their employees' resources, including time, flexibility, and effort, while the employees are receiving less from the organization in terms of career opportunities and job security (Maslach et al., 2001). This effort-reward imbalance violates the psychological contract and is likely to result in burnout because it erodes the concept of reciprocity. Researchers have pointed out that not only are IT professionals required to work

flexibly under high time pressure, there is also a high level of politics with respect to overseas assignments, creating additional stress which can lead to burnout (Yashwant Advani et al., 2005).

Finally, poor management is likely an important contributor to the burnout of IT workers. Statistics about the high failure rate of IT projects are often quoted. In 2001 it was determined that only 28% of IT projects were completed on time and on budget while the average project ran 45% over budget and 63% over schedule (Standish Group International, 2001). In addition, a third of all IT projects are cancelled before completion (Glaser, 2004). This poor record is blamed, at least in part, on poor management, as it has been shown that risks in IT projects are not effectively identified or managed (Baccarini, Salm, & Love, 2004). An employee operating under poor management may not be able to feel a sense of personal accomplishment, contributing to burnout. Furthermore, research has shown that managers and technology specialists often have difficulty speaking in terms understandable to each other, creating a turbulent project environment (Hilgendorf, 2005). The lack of effective communication could lead an IT employee to create emotional distance from the manager, and extended work in a turbulent project environment could create emotional exhaustion.

Industry experts acknowledge that these are scary times for IT workers, with the rapid spread of the global marketplace leading to downsizing of IT organizations and forcing IT workers to realign their skills (Gincel & Schwartz, 2005). Other industry insiders indicate their expectation for disgruntled IT workers to organize themselves through unions or otherwise (Vu, 2004). Technical workers who have lost their jobs to offshore outsourcing do not have access to benefits offered to manufacturing workers who have similarly

lost their jobs. The heavily unionized manufacturing industry workers may receive retraining, health care, re-employment, and moving expenses, but these programs are not available to white-collar workers (Thibodeau, 2006).

Several other factors in the industry may be exacerbating the problem of dissatisfied IT workers. Some surveys show that as onshore skill supplies become less important, salaries for IT workers in a variety of positions are decreasing (Vu, 2004). In addition, poor internal communication about (for example) the benefits expected from off-shoring and insufficient feedback opportunities for onshore employees breeds frustration and disaffection among the critical in-house employees. The resulting frustration and disaffection are implicated as causes of the reported 50% failure rate of offshore outsourced initiatives ("Recipe for Offshoring Outsourcing Failure," 2004). The perception that onshore skill supplies are becoming less important and poor internal communication create an environment in which technology workers feel pressure to build their capabilities faster than anyone else in order to be successful.

Although many routine IT jobs risk being off-shored, demand for IT workers specializing in specific industries is growing (Foote, 2006; Gincel & Schwartz, 2005). Expectations for IT workers are higher than ever, with hiring decisions often based upon not only technical expertise but also business acumen. It is apparent that hiring decisions for today's IT workers are based on "technical and business competencies, and the depth that candidates must demonstrate in both categories needs to be very close to, if not completely, unassailable" (Banerji, 2006). However, many organizations do not work to retain their IT workers and the industry expertise is not cultivated. The focus for IT is typically to reduce costs and increase organizational efficiency,

but little or no emphasis is concentrated on developing or implementing IT retention strategies. As stated by David Foote (2006), a longtime IT industry analyst and consultant:

> There's a gnawing fear among IT workers at all levels that if they stay with their current employer they can't, or won't, get where they want to be professionally. And it's justified. The abrupt layoffs of the last recession are still fresh in their minds and the prospect of more outsourcing and off-shoring only reinforces the message that they can be replaced at a moment's notice.

Foote (2006) goes on to suggest a variety of factors that can lead to job satisfaction of IT workers. Among these factors are competitive pay, perks, promotions, professional development, paid time-off, flexible schedules, and a fair work/life balance, which are typically important to workers of all types. However, these factors do not necessarily address the core retention issues of organizational trust and loyalty. Specific to IT workers, a stimulating and challenging work environment can be just as important as pay and benefits, and autonomy is often of utmost importance (Foote, 2006). While job dissatisfaction and burnout are separate constructs, it is likely that factors leading to job dissatisfaction overlap with factors leading to burnout.

Recent surveys confirm the importance of these factors and implicate others in causing dissatisfaction among IT workers. In 2006, one survey found unmanageable workload, dissatisfaction with pay and a lack of effective leadership to be the leading factors influencing IT workers intent to leave their jobs (Sweeney, 2006). Factors discussed as antecedents to burnout are also implicated by surveyed IT workers as causing job dissatisfaction. In the same study, about a third of responding IT workers wished for more career advancement opportunities, training, and development, and felt that there was an imbalance between work and home, while

about half indicated inadequate pay, and nearly two-thirds of respondents complained about their workload (Sweeney, 2006).

One leading burnout researcher, Michael Leiter, implicates five factors which he says work in conjunction to create frustrated, inefficient IT workers. His list of factors driving burnout in IT workers includes lack of control, sparse rewards and recognition, a weak community, subjective criteria for career advancement, and incongruity between the values of the workers and the values of the organization (Schurr, 2001). Poor communication between IT workers and management can drive the workers to the verge of burnout, but demonstrations of flexibility and trust in the form of flex time and telecommuting opportunities can go a long way in warding off exhaustion (Schurr, 2001).

In an industry profile offered by the U.S. Department of Labor Bureau of Labor Statistics (2006), issues that may contribute to stress in IT workers are noted. First, more than 90% of IT workers are employed in industries other than IT, which makes it necessary for these workers to have both IT and industry-specific training. Second, employers are also looking for their IT workers to have highly developed "soft" skills and adaptability in their workforce. The demand on an IT worker to be continuously developing and improving his or her technical skills to keep up with constant changes in technology coupled with requirements for highly developed communication and analysis skills and in-depth industry-specific knowledge could reasonably be expected to cause a high level of stress.

Finally, because the IT industry is undergoing such rapid change, some of the cause of IT worker burnout may be nostalgia for what IT used to be, even as recently as a few years ago. As King (2004) states, "Underlying workers' complaints about layoffs and burnout is a kind of

mourning for what IT used to be - a well-paid profession made up of hands-on problem solvers who were respected for their abilities." Emphasis now is on management and supervision of processes instead of actual implementation, which is often viewed as a replaceable commodity. IT workers who once felt valued now feel marginalized. Workers report that inadequate resources, unrealistic expectations, insincere management, and inane policies are some of the factors that cause the most misery in their jobs (King, 2004).

Conclusion

Over the past 20 years, more than 100 studies have been conducted to examine burnout in a variety of occupations (Hwang, Scherer, Fall-Ainina, 2003). These studies have shown that the primary antecedents to burnout include organizational and personal factors, pertaining to the demands of the job and the resources the worker uses to cope with those demands. As Houkes et al. (2003) explain, "When resources are lost or threatened, stress may occur. When individuals cannot deal with this stress effectively by allocating or investing new resources, prolonged stress and eventually burnout may develop." Sonnentag, Brodbeck, Heinbokel, & Stolte (1994) summarized the correlations of burnout in some IT professionals (software developers) by indicating that burnout is "not only associated with stressful situations but also with a lack of positive features in the work situation, such as control at work or openness to criticism within the team." Other researchers have investigated some of the antecedents of burnout among information technology professionals; however, the rapidly changing IT industry has created circumstances in which certain factors, such as work overload, lack of autonomy, poor management, and organizational trust, are more likely to contribute to burnout than others.

Though the amount of scholarly literature focused on burnout among IT workers is relatively limited, a number of recent trade publications have highlighted the problem of burnout among IT workers. These articles suggest several possible factors that characterize IT workers suffering from burnout. The factors implicated include work overload, lack of autonomy, sparse rewards and recognition, a weak community, subjective criteria for career advancement, and incongruity between the values of the workers and the values of the organization. In addition, flexible work hours, opportunities to telecommute, career advancement opportunities, and training are noted.

CHAPTER 3. METHODOLOGY

Purpose of the Study

Burnout has been shown to have serious negative implications for workers and organizations. The purpose of this study is to determine factors that may predict burnout among IT workers.

Research Foundations

Research has shown that there are a variety of correlates of burnout, including both personal and organizational factors. Autonomy, work overload, role conflict, role ambiguity, interpersonal conflict, and lack of management support are among the most commonly cited antecedents of burnout. Individual factors such as locus of control, perceived discrepancy between effort and reward, and demographic factors like age have also been shown to correlate with burnout.

Although burnout has been studied in a number of professions, research of burnout among IT workers is limited. Most recently, Sethi et al. (1999) investigated the correlates of burnout of IT workers, but considered only two factors, role conflict and role ambiguity. Their research revealed that role conflict and role ambiguity are both strongly, positively correlated to burnout among IT professionals.

Because burnout has been studied for more than 30 years in a variety of occupations, the literature presents a well-developed conceptualization of burnout. The most commonly accepted conceptualization of burnout presents the phenomenon as comprised of three components: emotional exhaustion, cynicism (also referred to as depersonalization), and professional inefficacy (also referred to as a lack of personal accomplishment). First, the emotional demands

of an individual's work exceed the available resources to cope with the stress created by the demands, resulting in emotional exhaustion. Then, depersonalization and reduced personal accomplishment occur. Depersonalization transpires when employees attempt to create emotional distance between themselves and others, thus developing a cynical attitude. The third component, inefficacy, is an erosion of an individual's sense of effectiveness.

The research of Sethi et al. (1999), which measured only the emotional exhaustion component of burnout, provides a starting point for further research into the phenomenon among IT professionals. This study will expand on this research by investigating other potential factors driving burnout of IT workers and testing the relationship of these potential factors with each of the three components of burnout.

Research Design

A descriptive study using both qualitative and quantitative data collection will be used to address the research questions. The research questions are:

1. What organizational and job factors best predict burnout of IT workers?
2. What individual factors best predict burnout of IT workers?

The mixed methodology research will be conducted and is described here in two phases. Phase one of the study will consist of in-depth interviews of two focus groups of IT workers. The purpose of these interviews (one interview with each group) will be to determine the organizational and job characteristics that influence job satisfaction and work exhaustion. In the second phase of the study, a correlational research design relying on survey data will be employed to investigate the hypotheses. A causal relationship between the variables will not be

established; rather, the extent to which burnout can be predicted and the factors that best predict burnout will be determined.

In addition to the factors suggested by the focus groups, the following hypotheses will be investigated.

H1a: There is no difference in the level of emotional exhaustion in IT workers who experience role ambiguity and IT workers who do not.

H1b: There is no difference in the level of cynicism in IT workers who experience role ambiguity and IT workers who do not.

H1c: There is no difference in the level of professional efficacy in IT workers who experience role ambiguity and those who do not.

H2a: There is no difference in the level of emotional exhaustion in IT workers who experience role conflict and IT workers who do not.

H2b: There is no difference in the level of cynicism in IT workers who experience role conflict and IT workers who do not.

H2c: There is no difference in the level of professional efficacy in IT workers who experience role conflict and those who do not.

H3a: There is no difference in the level of emotional exhaustion in IT workers who experience quantitative work overload and IT workers who do not.

H3b: There is no difference in the level of cynicism in IT workers who experience quantitative work overload and IT workers who do not.

H3c: There is no difference in the level of in IT workers who experience quantitative work overload and those who do not.

H4a: There is no difference in the level of emotional exhaustion in IT workers who experience qualitative work overload and IT workers who do not.

H4b: There is no difference in the level of cynicism in IT workers who experience qualitative work overload and IT workers who do not.

H4c: There is no difference in the level of professional efficacy in IT workers who experience qualitative work overload and those who do not.

H5a: There is no difference in the level of emotional exhaustion in IT workers who experience autonomy and IT workers who do not.

H5b: There is no difference in the level of cynicism in IT workers who experience autonomy and IT workers who do not.

H5c: There is no difference in the level of professional efficacy in IT workers who experience autonomy and those who do not.

H6a: There is no difference in the level of emotional exhaustion in IT workers who experience organizational politics and IT workers who do not.

H6b: There is no difference in the level of cynicism in IT workers who experience organizational politics and IT workers who do not.

H6c: There is no difference in the level of professional efficacy in IT workers who experience organizational politics and those who do not.

H7a: There is no difference in the level of emotional exhaustion in IT workers who fairly rewarded for their efforts and IT workers who do not.

H7b: There is no difference in the level of cynicism in IT workers who feel fairly rewarded for their efforts and IT workers who do not.

H7c: There is no difference in the level of professional efficacy in IT workers who feel fairly rewarded for their efforts and those who do not.

Participants

Two focus groups, each consisting of a purposeful, maximum variation sample of six IT workers including a systems analyst, a network engineer, a software engineer, and a desktop support worker, will be interviewed. These individuals will have a range of IT experience from 1 year to 15 years. The individuals will be contacted by phone and asked to participate in a small focus group. When one individual from each of the career groups agrees, a meeting time and place convenient to all four workers will be chosen. If any of the members of the focus group chooses to withdraw from the study prior to the meeting, another focus group member will be selected.

The theoretical population for this study is all IT workers in the United States. The study population will be IT workers in the area of La Crosse, Wisconsin. It is assumed that the IT environment and the levels of burnout of IT workers in the La Crosse area are similar to the environment and burnout levels in other areas in the United States. Selecting a sample in the La Crosse area provides the opportunity to collect information from a variety of organizations; the area is home to large corporations with global connections, world class health care systems including Mayo Clinic and a highly rated cardiac care facility, and a variety of higher education offerings which supplies a strong workforce.

A minimum of six and a maximum of eight organizations will be targeted as the sample population for this research. Because the U.S. Department of Labor Bureau of Labor Statistics (2006) notes that most IT workers are employed in industries other than IT, at least two-thirds of

the organizations in the sample will be in industries other than IT. A list of organizations in the sample frame will be collected through area chamber of commerce listings. From this list, the organizations will be categorized as health care, education, and software, and other. Two organizations will be randomly selected from each of the categories, thus ensuring a balance of IT-related and non-IT-related industries and making the sample more representative of the population. Health care and education were chosen as non-IT related industries because hospitals and universities are some of the largest employers of IT workers in the area and afford the opportunity to reach a higher number of IT workers in one organization than would be accessible through small organizations.

Once two organizations have been randomly selected from each of the categories, the organizations will be contacted to determine whether they are willing to participate. If the organization declines to participate, another organization from the same category (i.e., education, health care, software, or other) will be randomly selected. An organization's refusal to participate is not likely to be indicative of greater or lesser levels of burnout of the IT workers in the organization, so randomly selecting another organization should not skew results. Surveys will be distributed once at least six organizations from at least three of the industry categories have agreed to participate. Random selection from the different categories in this manner should increase the diversity of the sample and increase the likelihood that the results of this study can be generalized to a broader population. All of the IT workers at each participating organization will receive the survey.

Measures

The most commonly used instrument to assess job burnout is the Maslach Burnout Inventory (MBI), developed by Maslach and Jackson (1981). Because burnout was initially thought to exist only among those who do some type of "people work" (Maslach & Schaufeli, 1993), the MBI was developed to measure burnout in the human service professions. When it became obvious that burnout also occurs in other professions, a new version of the MBI was created. This adapted instrument, called the Maslach Burnout Inventory – General Survey (MBI-GS), contains the same three dimensions as the original survey, but the items are more generic and do not refer to the people with whom one is working (Schaufeli, Leiter, Maslach, & Jackson, 1996). Specifically, the exhaustion subscale measures fatigue without referring to other people as the source of tiredness; the cynicism subscale reflects indifference or a distant attitude towards work in general, not necessarily with other people; and the professional efficacy subscale encompasses both social and non-social aspects of occupational accomplishments (Schaufeli & Bakker, 2004). High scores on exhaustion and cynicism and low scores on professional efficacy are indicative of burnout.

It is clearly important to consider the validity and reliability of the MBI as an instrument to measure burnout. Maslach and Jackson (1981) first showed convergent validity of the MBI by finding substantial evidence of correlation between scores from the MBI and three other measurements. First, the researchers examined correlations of respondent scores from the MBI with ratings made independently by individuals who knew the respondents well. Second, the MBI scores were correlated with certain job characteristics that are deemed likely to contribute to burnout. Third, the MBI scores were correlated with measures of likely outcomes related to

burnout. In addition, the researchers found external validation of the instrument by having anonymous knowledgeable observers corroborate a coworker's MBI scores. Finally, there is a potential concern that MBI scores may be distorted because many of the items describe feelings that are contrary to professional ideals, and a respondent may be tempted to provide inaccurate information that is more socially desirable. Maslach and Jackson (1981) addressed this concern by conducting research on a sample of people who completed both the MBI and a social desirability instrument and found no significant correlation between the social desirability scores and any of the MBI subscales.

In 2000, the factorial validity of the MBI-GS was shown across occupational groups (Schutte, Toppinen, Kalimo, & Schaufeli, 2000). This study provided support for the three-factor structure of the MBI-GS as a superior model to the one- or two-factor models sometimes used to measure burnout. Further, the three-factor structure proved invariant across all occupational groups, and the internal consistencies of all three subscales were shown to be satisfactory. However, one item in the cynicism subscale was shown to be problematic, so it has been recommended that this ambiguous cynicism item be excluded (Schutte et al., 2000).

The reliability of the MBI has been demonstrated in a number of studies (Jackson, Turner, & Brief, 1987; Sethi et al., 1999; Yashwant Advani et al., 2005). Maslach and Jackson (1981) first found the reliability of each of the subscales to be satisfactory, with Cronbach's alpha reliability coefficients of .89 for emotional exhaustion, .74 for professional efficacy, and .72 for depersonalization.

Because the validity and reliability of the MBI-GS have been clearly demonstrated, the MBI-GS is the instrument chosen to measure burnout in the present study. The questionnaire

utilized in the second phase of the study will be partially comprised of 15 questions of the MBI-GS (One item, "I just want to do my job and not be bothered", was removed because it has been found to be notoriously unsound (Schaufeli & Bakker, 2004).

Data Collection

Two focus groups, each consisting of a purposeful, maximum variation sample of 6 IT workers working in roles including systems analyst, network engineer, software engineer, and desktop support worker, will be interviewed. Each of the groups will contain at least one worker from each of the four specified roles. Two interviews will be conducted as face-to-face meetings of the researcher and six members of the focus group. The purpose of the study will be briefly described by the researcher, and then a discussion will be set forth to determine those factors deemed most important in avoiding exhaustion by the members of the group. The group will be advised that the transcript of the interview will be analyzed, and the factors that emerge will be measured in the second phase of the study. Those factors that emerge from both groups will be analyzed in the second phase of the research.

The second phase of the study will involve the distribution of a survey to the IT workers in a sample of six to eight organizations in Wisconsin. First, a pilot study including distribution of the questionnaire to two IT workers in the sample will be conducted. Upon completion of the questionnaire, each of the IT workers will be interviewed to determine if the self-reported exhaustion, cynicism, and professional efficacy correlate to the researcher's perception of the three constructs in the worker. Upon successful completion of the pilot study, the surveys will be distributed to the remainder of the sample. An IT manager at each of the organizations will be contacted. The purpose of the study will be described, and participation of the IT workers

within the organization will be requested. All IT workers of each participating organization will receive the questionnaire. The questionnaires will be distributed as hard copies and hand delivered to the organization by the researcher. With permission of each organization's IT manager, the surveys will be collected by the researcher at the end of the following workday.

Data Analysis

The meetings with the focus groups will be audio-recorded and transcribed. The researcher will analyze the transcripts to determine the most important factors that emerged in each interview. Each factor that emerged in both interviews will correspond to a single question on the survey.

To estimate internal consistency of the responses for each item on the questionnaire, Cronbach's Alpha will be calculated. Frequency distributions, measures of central tendency, and variance will be among the descriptive statistics used to summarize the variables. Independent samples t-tests (or the nonparametric equivalent, the Mann-Whitney U tests) will be conducted to determine if there is a statistically significant difference between burnout levels in workers who did not experience a particular factor and those who did.

Limitations

Independent and dependent variables of the present research are measured through a self-report methodology. Therefore, common method bias is a concern. Common method bias, or common method variance, refers to contexts in which a respondent could give a construct's true score, but because of a common method (e.g., social desirability, acquiescence tendency, mood state), he or she gives a different rating (Burton-Jones & Straub, 2004). To reduce the possibility of common method bias, face-to-face interviews will be conducted with survey respondents

during the pilot study. The purpose of these interviews is to determine if the responses on the questionnaire are in alignment with the researcher's perception of the level of exhaustion, cynicism, and professional efficacy of the respondents. This triangulation will offer support for the validity of the self-reported burnout measure.

CHAPTER 4: ANALYSIS

This chapter presents the results of the study. First, results of the focus group interviews are presented. Next, a description of the study sample is followed by an analysis of reliability of scale results. Next, descriptive statistics and results pertaining to each hypothesis are presented. Finally, additional analysis of data collected in the survey is also included.

Focus Group Interview Results

The purpose of the interviews with the focus groups was to develop a list of potential factors that influence IT worker burnout levels. The first focus group consisted of 6 IT workers: 1 database administrator, 1 business analyst, 2 programmers, 1 network administrator, and 1 help desk technician. The second focus group also consisted of 6 IT workers: 2 help desk technicians, 1 database administrator, 2 programmers, and 1 network administrator. The factors discovered in both focus groups were to be used for generating the survey questionnaire.

An Ishikawa diagram (also known as a fishbone diagram), which is a tool used for executing root cause analysis, was utilized during each of the meetings with the focus groups. This technique was applied because it encourages in-depth development and discourages premature solutions (http://www.mycoted.com/Fishbone_Diagram). Use of the diagrams helped to organize the brainstorming and assisted in determining the most likely causes of the burnout syndrome among IT workers. Upon completion of the meeting with each focus group, the group had created a list of factors that they agreed had the most impact on burnout levels in their jobs. The list of factors that appeared in the lists of both focus groups is shown in Table 1.

Table 1 Focus Group Factors

Too much work under time pressure
Lack of participation in decision-making
Working with offshore team members
Managers do not understand IT work
Know someone who was laid off – job insecurity
Have to be "on call"
Insufficient training on new technologies
Poor promotion prospects
"Menial tasks" distract from "real" work
Work must be prioritized – not everything should be an "emergency"
Work must be challenging enough / be mentally stimulating
Insufficient reward
Insufficient recognition/respect
Organizational politics
Expected to connect and work from home on evenings and weekends

A questionnaire was developed to assess each of these factors. The three components of burnout – emotional exhaustion, cynicism, and professional inefficacy – were evaluated with the MBI-GS.

The survey was first piloted with a group of 3 IT workers from the first organization contacted that agreed to participate. The survey was hand-delivered to each of the workers and collected upon completion. Each of the three IT workers completed the survey in 10 minutes or less, and none had any questions while completing the survey.

Description of the Sample

There were 180 respondents of the 186 surveys distributed, yielding a response rate of nearly 97%. The response rate was expected to be high because of the method of distribution; while response rates of web-based surveys or mailed surveys are typically much lower, hand delivery and collection of the surveys resulted in a higher response rate. Burnout studies may have problems with non-response bias; however, the extremely high rate of response in this

study mitigates that possibility. Given the high response rate and the diversity of IT role and organization size, it is assumed that the results of the survey are representative of the population.

Demographic Characteristics of the Sample

Several demographic variables were measured by the questionnaire. These variables included organizational tenure, tenure working in IT, education level, IT role, and age. Respondent percentages were calculated for each of these variables and are shown in Table 2.

Table 2 Distribution of the demographic variables: Organizational tenure, IT tenure, Education level, and IT role

		N (%)
Organizational Tenure	Less than 1 year	6 (3.3%)
	1 – 4 years	57 (31.7%)
	5 – 9 years	86 (47.8%)
	10 or more years	31 (17.2%)
IT Tenure	Less than 1 year	0 (0%)
	1 – 4 years	23 (12.8%)
	5 – 9 years	60 (33.3%)
	10 or more years	97 (53.9%)
Education Level	High school	27 (15.0%)
	Associates	38 (21.1%)
	Bachelors	93 (51.7%)
	Masters	22 (12.2%)
	Doctorate	0 (0%)
Role	Help desk	15 (8.3%)
	Software / programmer	80 (44.4%)
	IT manager	22 (12.2%)
	Networking / admin	35 (19.4%)
	Database	28 (15.6%)
Age	Mean = 37.1 years	StDev = 8.35 years

In summary, 65% of the respondents had worked in their respective organizations for five or more years. The majority (53.9%) of the respondents had worked in IT for ten or more years and had a bachelor's degree (51.7%). The respondents were evenly distributed between roles, with most working in software/programming roles and fewest working in help desk roles.

The sample contained IT workers from six different organizations. Two organizations were from the software industry, one was an educational institution, one was from the manufacturing industry, and two were from the health care industry. Two organizations that had been selected declined to participate; one declined because of a corporate policy against surveying its workers, and the other declined because the organization had recently surveyed its employees about a similar issue. An IT manager in each of the organizations assisted the researcher in distributing surveys to all of the IT workers who were working that day.

Validity and Reliability

Though the validity of the MBI-GS has been shown, the other questions on the survey were designed specifically for this study, so their validity had yet to be demonstrated. Face validity of the survey used in the present researched was evaluated through interviews with several of the first respondents of the survey. The researcher privately met with each of the three respondents in the pilot group to discuss their ratings and verify that the researcher interpreted the respondents' intents correctly. These interviews provide ample reassurance that the questions were in fact assessing the factors as the researcher intended and that the data were being interpreted as the respondents intended. Because observing the employees in their work environment was not an option available to this researcher (due to policies at specific organizations), the positive results from the test group must be relied upon as evidence of construct validity. According to the test group, no revisions of the survey were necessary.

The reliability of a survey is also of critical importance. Cronbach's alpha was calculated to confirm sufficient reliability of each of the burnout subscales. The Chronbach's alpha was very good for each of the subscales. Results of the reliability test for each of the subscales are shown in Table 3.

Table 3 Reliability Tests for MBI-GS Subscales

Subscale	Cronbach's alpha
Emotional Exhaustion	.878
Cynicism	.863
Professional Efficacy	.777

Exploratory Data Analysis

Assumptions were examined to determine statistical sensitivities. The demographic variables, organizational factor variables, and burnout instrument variables were inspected for missing values, plausible central tendencies, and for general accuracy. Histograms of the emotional exhaustion, cynicism, and professional efficacy scores plotted against each of the independent variables, and the homogeneity of variances of the variables was examined in boxplots. These exploratory analyses were used to determine whether the t-test or its non-parametric equivalent, the Mann-Whitney U test, would be used to test each hypothesis.

Data Encoding

Survey questions 10 through 23 assessed factors using a 5-point Likert scale. Responses were assigned values 1 ("strongly disagree") through 5 ("strongly agree"). The hypotheses are stated in such a way that each response must be categorized in one of two ways – either the respondent did experience that factor, or the respondent did not experience that factor. Response values 4 and 5 were categorized as positive and values 1 through 3 were considered negative. For example, question number 13 asks the respondent to rate his or her feeling on the statement " I participate in the decisions about how I do my work." If the response was 4 (agree), the respondent was categorized as experiencing autonomy. If the response was 3 (no opinion), the respondent was categorized as not experiencing autonomy.

Data Analysis

All analyses were conducting using SPSS version 12. Hypotheses were tested using Mann-Whitney U tests. The nonparametric tests were chosen because of the violation of the normality assumption for the independent samples t-test.

Hypothesis One

H1a: There is no difference in the level of emotional exhaustion in IT workers who experience role ambiguity vs. IT workers who do not.

H1b: There is no difference in the level of cynicism in IT workers who experience role ambiguity vs. IT workers who do not.

H1c: There is no difference in the level of personal accomplishment in IT workers who experience role ambiguity vs. those who do not.

These hypotheses were evaluated by question 11 ("My work is prioritized; not everything is an emergency.") on the survey. First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 4 Role Ambiguity Test Statistics (Emotional Exhaustion)

Test Statistics[a]

	EXMean
Mann-Whitney U	2440.000
Wilcoxon W	8881.000
Z	-3.991
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: RoleAmbig

The p-value of .000 is less than .05, so null hypothesis H1a is rejected. IT workers who experienced role ambiguity had significantly higher emotional exhaustion scores than IT workers who did not. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 5 Role Ambiguity Test Statistics (Cynicism)

Test Statistics[a]

	CYMean
Mann-Whitney U	2837.500
Wilcoxon W	9278.500
Z	-2.849
Asymp. Sig. (2-tailed)	.004

a. Grouping Variable: RoleAmbig

The p-value of .004 is less than .05, so null hypothesis H1b is rejected. IT workers who experienced role ambiguity had significantly higher cynicism scores than IT workers who did not. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 6 Role Ambiguity Test Statistics (Inefficacy)

Test Statistics[a]

	PEMean
Mann-Whitney U	3276.000
Wilcoxon W	9717.000
Z	-1.519
Asymp. Sig. (2-tailed)	.129

a. Grouping Variable: RoleAmbig

The p-value of .129 is greater than .05, so null hypothesis H1c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who experienced role ambiguity vs. those who did not.

Hypothesis Two

H2a: There is no difference in the level of emotional exhaustion in IT workers who experience role conflict vs. those who do not.

H2b: There is no difference in the level of cynicism in IT workers who experience role conflict vs. those who do not.

H2c: There is no difference in the level of personal accomplishment in IT workers who experience role conflict vs. those who do not.

These hypotheses were evaluated by question 12 ("I get mixed messages from different people about what I should be doing with my time.") on the survey. First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 7 Role Conflict Test Statistics (Emotional Exhaustion)

Test Statistics[a]

	EXMean
Mann-Whitney U	2104.000
Wilcoxon W	7154.000
Z	-5.471
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: RoleConflict

The p-value of .000 is less than .05, so null hypothesis H2a is rejected. IT workers who experienced role conflict had significantly higher emotional exhaustion scores than those who did not experience role conflict. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 8 Role Conflict Test Statistics (Cynicism)

	CYMean
Mann-Whitney U	3124.000
Wilcoxon W	8174.000
Z	-2.561
Asymp. Sig. (2-tailed)	.010

a Grouping Variable: RoleConflict

The p-value of .010 is less than .05, so null hypothesis H2b is rejected. IT workers who experienced role conflict had significantly higher cynicism scores than those who did not experience role conflict. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 9 Role Conflict Test Statistics (Inefficacy)

Test Statistics[a]

	PEMean
Mann-Whitney U	3398.500
Wilcoxon W	8448.500
Z	-1.744
Asymp. Sig. (2-tailed)	.081

a. Grouping Variable: RoleConflict

The p-value of .081 is not less than .05, so null hypothesis H2c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who experienced role conflict vs. those who did not.

Hypothesis Three

H3a: There is no difference in the level of emotional exhaustion in IT workers who experience quantitative work overload vs. those who do not.

H3b: There is no difference in the level of cynicism in IT workers who experience quantitative work overload vs. those who do not.

H3c: There is no difference in the level of personal accomplishment in IT workers who experience quantitative work overload vs. those who do not.

These hypotheses were evaluated by question 16 ("I have too much work to complete in the given timeframes.") on the survey. First, emotional exhaustion is evaluated using the Mann-Whitney U test.

Table 10 Quantitative Work Overload Test Statistics (Emotional Exhaustion)

Test Statistics[a]

	EXMean
Mann-Whitney U	2031.000
Wilcoxon W	3571.000
Z	-4.378
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: QuantOverload

The p-value of .000 is less than .05, so null hypothesis H3a is rejected. Emotional exhaustion was higher in IT workers who experienced quantitative work overload than in those who did not. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 11 Quantitative Work Overload Test Statistics (Cynicism)

Test Statistics[a]

	CYMean
Mann-Whitney U	2620.500
Wilcoxon W	4160.500
Z	-2.577
Asymp. Sig. (2-tailed)	.010

a. Grouping Variable: QuantOverload

The p-value of .010 is less than .05, so null hypothesis H3b is rejected. Cynicism was higher in IT workers who experienced quantitative work overload than in those who did not. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 12 Quantitative Work Overload Test Statistics (Inefficacy)

Test Statistics[a]

	PEMean
Mann-Whitney U	3035.500
Wilcoxon W	10910.500
Z	-1.258
Asymp. Sig. (2-tailed)	.209

a. Grouping Variable: QuantOverload

The p-value of .209 is not less than .05, so null hypothesis H3c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who experienced quantitative work overload vs. those who did not.

Hypothesis Four

H4a: There is no difference in the level of emotional exhaustion in IT workers who experience qualitative work overload vs. those who do not.

H4b: There is no difference in the level of cynicism in IT workers who experience qualitative work overload vs. those who do not.

H4c: There is no difference in the level of personal accomplishment in IT workers who experience qualitative work overload vs. those who do not.

These hypotheses were evaluated by question 10 ("The requirements of my job exceed my skill level.") on the survey. First, emotional exhaustion is evaluated using the Mann-Whitney U test.

Table 13 Qualitative Work Overload Test Statistics (Emotional Exhaustion)

Test Statistics[a]

	EXMean
Mann-Whitney U	1815.500
Wilcoxon W	13291.500
Z	-1.459
Asymp. Sig. (2-tailed)	.145

a. Grouping Variable: QualOverload

The p-value of .145 is greater than .05, so null hypothesis H4a is not rejected. There was insufficient evidence to conclude a difference exists in the emotional exhaustion scores of IT workers who experienced qualitative work overload vs. those who did not. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 14 Qualitative Work Overload Test Statistics (Cynicism)

Test Statistics[a]

	CYMean
Mann-Whitney U	2009.500
Wilcoxon W	2444.500
Z	-.711
Asymp. Sig. (2-tailed)	.477

a. Grouping Variable: QualOverload

The p-value of .477 is greater than .05, so null hypothesis H4b is not rejected. There was insufficient evidence to conclude a difference exists in the cynicism scores of IT workers who experienced qualitative work overload vs. those who did not. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 15 Qualitative Work Overload Test Statistics (Inefficacy)

	PEMean
Mann-Whitney U	1793.500
Wilcoxon W	2228.500
Z	-1.552
Asymp. Sig. (2-tailed)	.121

a Grouping Variable: QualOverload

The p-value of .121 is not less than .05, so null hypothesis H4c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who experienced qualitative work overload vs. those who did not.

Hypothesis Five

H5a: There is no difference in the level of emotional exhaustion in IT workers who experience autonomy vs. those who do not.

H5b: There is no difference in the level of cynicism in IT workers who experience autonomy vs. those who do not.

H5c: There is no difference in the level of personal accomplishment in IT workers who experience autonomy vs. those who do not.

These hypotheses were evaluated by question 13 ("I participate in the decisions about how I do my work. ") on the survey. First, emotional exhaustion is evaluated using the Mann-Whitney U test.

Table 16 Autonomy Test Statistics (Emotional Exhaustion)

Test Statistics[a]

	EXMean
Mann-Whitney U	1442.000
Wilcoxon W	13688.000
Z	-1.814
Asymp. Sig. (2-tailed)	.070

a. Grouping Variable: Autonomy

The p-value of .07 is greater than .05, so null hypothesis H5a is not rejected. There was insufficient evidence to conclude a difference exists in the emotional exhaustion scores of IT workers who experienced autonomy vs. those who did not. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 17 Autonomy Test Statistics (Cynicism)

Test Statistics[a]

	CYMean
Mann-Whitney U	1644.000
Wilcoxon W	1944.000
Z	-.974
Asymp. Sig. (2-tailed)	.330

a. Grouping Variable: Autonomy

The p-value of .330 is greater than .05, so null hypothesis H5b is not rejected. There was insufficient evidence to conclude a difference exists in the cynicism scores of IT workers who experienced autonomy vs. those who did not. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 18 Autonomy Test Statistics (Inefficacy)

Test Statistics[a]

	PEMean
Mann-Whitney U	1431.000
Wilcoxon W	13677.000
Z	-1.870
Asymp. Sig. (2-tailed)	.062

a. Grouping Variable: Autonomy

The p-value of .062 is greater than .05, so null hypothesis H5c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who experienced autonomy vs. those who did not.

Hypothesis Six

H6a: There is no difference in the level of emotional exhaustion in IT workers who experience organizational politics vs. those who do not.

H6b: There is no difference in the level of cynicism in IT workers who experience organizational politics vs. those who do not.

H6c: There is no difference in the level of personal accomplishment in IT workers who experience organizational politics vs. those who do not.

These hypotheses were evaluated by question 17 ("Organizational politics interfere with my work.") on the survey. First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 19 Organizational Politics Test Statistics (Emotional Exhaustion)

Test Statistics[a]

	EXMean
Mann-Whitney U	1828.500
Wilcoxon W	2863.500
Z	-3.954
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Politics

The p-value of .000 is less than .05, so null hypothesis H6a is rejected. Emotional exhaustion was higher in IT workers who felt that organizational politics interfered with their work than in those IT workers who did not feel that organizational politics interfered with their work. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 20 Organizational Politics Test Statistics (Cynicism)

Test Statistics[a]

	CYMean
Mann-Whitney U	2262.500
Wilcoxon W	3297.500
Z	-2.542
Asymp. Sig. (2-tailed)	.011

a. Grouping Variable: Politics

The p-value of .011 is less than .05, so null hypothesis H6b is rejected. Cynicism was higher among IT workers who felt that organizational politics interfered with their work than in those IT workers who did not. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 21 Organizational Politics Test Statistics (Inefficacy)

Test Statistics[a]

	PEMean
Mann-Whitney U	2424.500
Wilcoxon W	3459.500
Z	-1.978
Asymp. Sig. (2-tailed)	.048

a. Grouping Variable: Politics

The p-value of .048 is less than .05, so null hypothesis H6c is rejected. Professional efficacy scores were higher (indicating more professional inefficacy) among IT workers who felt that organizational politics interfered with their work than in those IT workers who did not.

Hypothesis Seven

H7a: There is no difference in the level of emotional exhaustion in IT workers who feel fairly rewarded for their efforts vs. those who do not.

H7b: There is no difference in the level of cynicism in IT workers who feel fairly rewarded for their efforts vs. those who do not.

H7c: There is no difference in the level of personal accomplishment in IT workers who feel fairly rewarded for their efforts vs. those who do not.

These hypotheses were evaluated by question 19 ("I am fairly rewarded for the effort I put into my work.") on the survey. First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 22 Fair Reward Test Statistics (Emotional Exhaustion)

	EXMean
Mann-Whitney U	2842.000
Wilcoxon W	8407.000
Z	-3.186
Asymp. Sig. (2-tailed)	.001

a Grouping Variable: FairReward

The p-value of .001 is less than .05, so null hypothesis H7a is rejected. Emotional exhaustion was higher in IT workers who did not feel they were being fairly rewarded for the work they do than in those workers who felt they were being fairly rewarded. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 23 Fair Reward Test Statistics (Cynicism)

	CYMean
Mann-Whitney U	2416.000
Wilcoxon W	7981.000
Z	-4.483
Asymp. Sig. (2-tailed)	.000

a Grouping Variable: FairReward

The p-value of .000 is less than .05, so null hypothesis H7b is rejected. Cynicism was higher in IT workers who did not feel they were being fairly rewarded for the work they do than in those workers who felt they were being fairly rewarded. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 24 Fair Reward Test Statistics (Inefficacy)

	PEMean
Mann-Whitney U	3458.500
Wilcoxon W	9023.500
Z	-1.400
Asymp. Sig. (2-tailed)	.161

a Grouping Variable: FairReward

The p-value of .161 is not less than .05, so null hypothesis H7c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who felt fairly rewarded vs. those who did not.

Additional Analyses

A number of additional analyses were conducted on the collected data. The results of these analyses are presented here. First, a classification of levels of emotional exhaustion, cynicism, and professional efficacy according to the classifications of Maslach et al (1996) are presented. Next, the variables indicated as potential factors by the focus groups are each presented as hypotheses and related results. Finally, the relationship of each of the demographic variables is tested against each of the burnout subscales.

Burnout Classifications

As per the recommendation of Maslach et al (1996), the scores for each burnout subscale can be classified into a burnout level of either "low", "medium", or "high". The range for each of these classifications is shown in Table 25.

Table 25 Range of Burnout on MBI-GS

	LOW	MIDDLE	HIGH
Exhaustion	0-2.00	2.01-3.19	>3.19
Cynicism	0-1.0	1.01-2.19	>2.19
Professional Efficacy	0-4.0	4.01-4.99	>4.99

Frequencies and percentages of responses for each of the burnout subscales were analyzed and categorized as low, average, and high. On the emotional exhaustion subscale, scores were fairly evenly distributed between the low, middle, and high ranges. Cynicism scores indicated that most of the IT workers were either highly cynical (43.3%) or not very cynical (30.0%), with fewer workers falling into the middle category (36.1%). Every respondent indicated high professional efficacy scores, which indicates they were not experiencing a lack of personal accomplishment.

Table 26 Summary of Classifications of Burnout Levels of Survey Respondents

	LOW	MIDDLE	HIGH
Emotional Exhaustion	57 (31.7%)	65 (36.1%)	58 (32.2%)
Cynicism	54 (30.0%)	48 (26.7%)	78 (43.3%)
Professional Efficacy	0 (0.0%)	0 (0.0%)	180 (100.0%)

Analysis of Factors Identified by Focus Groups

Focus groups identified manager understanding, being able to focus on "real work" instead of menial tasks, feeling respected at work, being mentally stimulated at work, having reasonable promotion prospects, and receiving adequate training as variables that might mitigate burnout. Analysis of each of these variables is presented here.

Manager Understands Work.

H8a: There is no difference in the level of emotional exhaustion in IT workers who feel they have a manager who understands the work they do vs. those who do not.

H8b: There is no difference in the level of cynicism in IT workers who feel they have a manager who understands the work they do vs. those who do not.

H8c: There is no difference in the level of personal accomplishment in IT workers who feel they have a manager who understands the work they do vs. those who do not.

These hypotheses were evaluated by question 15 ("My manager understands the work that I do.") on the survey. First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 27 Manager Understands Test Statistics (Emotional Exhaustion)

Test Statistics[a]

	EXMean
Mann-Whitney U	1819.000
Wilcoxon W	12115.000
Z	-2.932
Asymp. Sig. (2-tailed)	.003

a. Grouping Variable: MgrUnderstands

The p-value of .003 is less than .05, so null hypothesis H8a is rejected. IT workers who felt they had a manager who understands the work they do had significantly lower emotional exhaustion scores than IT workers who did not. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 28 Manager Understands Test Statistics (Cynicism)

Test Statistics[a]

	CYMean
Mann-Whitney U	1347.000
Wilcoxon W	11643.000
Z	-4.668
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: MgrUnderstands

The p-value of .000 is less than .05, so null hypothesis H8b is rejected. IT workers who felt they had a manager who understands the work they do had significantly lower cynicism scores than IT workers who did not. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 29 Manager Understands Test Statistics (Inefficacy)

Test Statistics[a]

	PEMean
Mann-Whitney U	2383.000
Wilcoxon W	12679.000
Z	-.936
Asymp. Sig. (2-tailed)	.349

a. Grouping Variable: MgrUnderstands

The p-value of .349 is greater than .05, so null hypothesis H8c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who felt their managers understood their work vs. those who did not.

Menial Tasks Divert Attention.

H9a: There is no difference in the level of emotional exhaustion in IT workers who feel that menial tasks divert their attention from their "real" work vs. those who do not.

H9b: There is no difference in the level of cynicism in IT workers who feel that menial tasks divert their attention from their "real" work vs. those who do not.

H9c: There is no difference in the level of personal accomplishment in IT workers who feel that menial tasks divert their attention from their "real" work vs. those who do not.

These hypotheses were evaluated by question 18 ("Menial tasks divert my attention from my "real" work.") on the survey. First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 30 Divert Attention Test Statistics (Emotional Exhaustion)

Test Statistics[a]

	EXMean
Mann-Whitney U	1593.000
Wilcoxon W	2721.000
Z	-4.958
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: DivertAttention

The p-value of .000 is less than .05, so null hypothesis H9a is rejected. IT workers who felt that menial tasks diverted their attention from their "real" work had significantly higher emotional exhaustion scores than IT workers who did not. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 31 Divert Attention Test Statistics (Cynicism)

Test Statistics[a]

	CYMean
Mann-Whitney U	2038.000
Wilcoxon W	3166.000
Z	-3.543
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: DivertAttention

The p-value of .000 is less than .05, so null hypothesis H9b is rejected. IT workers who felt that menial tasks diverted their attention from their "real" work had significantly higher cynicism scores than IT workers who did not. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 32 Divert Attention Test Statistics (Inefficacy)

Test Statistics[a]

	PEMean
Mann-Whitney U	2365.000
Wilcoxon W	3493.000
Z	-2.434
Asymp. Sig. (2-tailed)	.015

a. Grouping Variable: DivertAttention

The p-value of .015 is less than .05, so null hypothesis H9c is rejected. IT workers who felt that menial tasks diverted their attention from their "real" work had significantly higher professional efficacy scores than IT workers who did not. This indicates that the workers who felt that menial tasks diverted their attention from their "real" work were more likely to feel a lack of personal accomplishment.

Feel Respected at Work.

H10a: There is no difference in the level of emotional exhaustion in IT workers who feel respected at work vs. those who do not.

H10b: There is no difference in the level of cynicism in IT workers who feel respected at work vs. those who do not.

H10c: There is no difference in the level of personal accomplishment in IT workers who feel respected at work vs. those who do not.

These hypotheses were evaluated by question 20 ("I feel respected at work."). First, emotional exhaustion is examined using a Mann-Whitney U test.

Table 33 Respected Test Statistics (Emotional Exhaustion)

	EXMean
Mann-Whitney U	2198.000
Wilcoxon W	12494.000
Z	-1.588
Asymp. Sig. (2-tailed)	.112

a Grouping Variable: Respected

The p-value of .012 is not less than .05, so null hypothesis H10a is not rejected. There was insufficient evidence to conclude a difference exists in the emotional exhaustion scores of IT workers felt respected at work vs. those who did not. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 34 Respected Test Statistics (Cynicism)

	CYMean
Mann-Whitney U	2112.000
Wilcoxon W	12408.000
Z	-1.918
Asymp. Sig. (2-tailed)	.055

The p-value of .055 is not less than .05, so null hypothesis H10b is not rejected. There was insufficient evidence to conclude a difference exists in the cynicism scores of IT workers who felt respected at work vs. those who did not. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 35 Respected Test Statistics (Inefficacy)

	PEMean
Mann-Whitney U	2621.500
Wilcoxon W	3324.500
Z	-.086
Asymp. Sig. (2-tailed)	.932

a Grouping Variable: Respected

The p-value of .932 is not less than .05, so null hypothesis H10c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who felt respected at work vs. those who did not.

Feel Mentally Stimulated.

H11a: There is no difference in the level of emotional exhaustion in IT workers who feel mentally stimulated at work vs. those who do not.

H11b: There is no difference in the level of cynicism in IT workers who feel mentally stimulated at work vs. those who do not.

H11c: There is no difference in the level of personal accomplishment in IT workers who feel mentally stimulated at work vs. those who do not.

These hypotheses were evaluated by question 21 ("I feel mentally stimulated at work."). First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 36 Stimulated Test Statistics (Emotional Exhaustion)

	EXMean
Mann-Whitney U	2636.000
Wilcoxon W	12647.000
Z	-.395
Asymp. Sig. (2-tailed)	.693

a Grouping Variable: Stimulated

The p-value of .693 is not less than .05, so null hypothesis H11a is not rejected. There was insufficient evidence to conclude a difference exists in the emotional exhaustion scores of IT workers who felt mentally stimulated at work vs. those who did not. Next, cynicism is evaluated using the Mann-Whitney U test.

Table 37 Stimulated Test Statistics (Cynicism)

	CYMean
Mann-Whitney U	2236.500
Wilcoxon W	12247.500
Z	-1.809
Asymp. Sig. (2-tailed)	.070

a Grouping Variable: Stimulated

The p-value of .070 is not less than .05, so null hypothesis H11b is not rejected. There was insufficient evidence to conclude a difference exists in the cynicism scores of IT workers who felt mentally stimulated vs. those who did not. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 38 Stimulated Test Statistics (Inefficacy)

	PEMean
Mann-Whitney U	2123.000
Wilcoxon W	12134.000
Z	-2.192
Asymp. Sig. (2-tailed)	.028

a Grouping Variable: Stimulated

The p-value of .028 is less than .05, so null hypothesis H11c is rejected. IT workers who felt mentally stimulated at work had higher scores of professional efficacy than those who did not feel stimulated. Higher scores on the professional efficacy subscale indicate a lack of personal accomplishment.

Promotion Prospects.

H12a: There is no difference in the level of emotional exhaustion in IT workers who have reasonable promotion vs. those who do not.

H12b: There is no difference in the level of cynicism in IT workers who have reasonable promotion vs. those who do not.

H12c: There is no difference in the level of personal accomplishment in IT workers who have reasonable promotion vs. those who do not.

These hypotheses were evaluated by question 22 ("I have reasonable promotion prospects in this organization."). First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 39 Promotion Prospects Test Statistics (Emotional Exhaustion)

	EXMean
Mann-Whitney U	2681.000
Wilcoxon W	4112.000
Z	-2.153
Asymp. Sig. (2-tailed)	.031

a Grouping Variable: Promotion

The p-value of .031 is less than .05, so null hypothesis H12a is rejected. IT workers who felt they had reasonable promotion prospects had lower emotional exhaustion scores than IT workers who did not feel they had reasonable promotion prospects. Next, cynicism is examined using the Mann-Whitney U test.

Table 40 Promotion Prospects Test Statistics (Cynicism)

	CYMean
Mann-Whitney U	1958.000
Wilcoxon W	3389.000
Z	-4.486
Asymp. Sig. (2-tailed)	.000

a Grouping Variable: Promotion

The p-value of .000 is less than .05, so null hypothesis H12b is rejected. IT workers who felt they had reasonable promotion prospects had lower cynicism scores than IT workers who did not feel they had reasonable promotion prospects. Finally, professional efficacy is examined using the Mann-Whitney U test.

Table 41 Promotion Prospects Test Statistics (Inefficacy)

	PEMean
Mann-Whitney U	3245.000
Wilcoxon W	11373.000
Z	-.381
Asymp. Sig. (2-tailed)	.703

a Grouping Variable: Promotion

The p-value of .703 is not less than .05, so null hypothesis H12c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who felt they had reasonable promotion prospects vs. those who did not.

Adequate Training.

H13a: There is no difference in the level of emotional exhaustion in IT workers who felt they had adequate training vs. those who do not.

H13b: There is no difference in the level of cynicism in IT workers who felt they had adequate training vs. those who do not.

H13c: There is no difference in the level of personal accomplishment in IT workers who felt they had adequate training vs. those who do not.

These hypotheses were evaluated by question 23 ("I receive adequate training to do my job."). First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 42 Training Test Statistics (Emotional Exhaustion)

	EXMean
Mann-Whitney U	3586.000
Wilcoxon W	9691.000
Z	-.776
Asymp. Sig. (2-tailed)	.437

a Grouping Variable: Training

The p-value of .437 is not less than .05, so null hypotheses H13a is not rejected. There was insufficient evidence to conclude a difference exists in the emotional exhaustion scores of IT workers who felt they received adequate training vs. those who did not. Next, cynicism is examined using the Mann-Whitney U test.

Table 43 Training Test Statistics (Cynicism)

	CYMean
Mann-Whitney U	3453.500
Wilcoxon W	5938.500
Z	-1.182
Asymp. Sig. (2-tailed)	.237

a Grouping Variable: Training

The p-value of .437 is not less than .05, so null hypotheses H13b is not rejected. There was insufficient evidence to conclude a difference exists in the cynicism scores of IT workers who felt they received adequate training vs. those who did not. Finally, professional efficacy is examined using the Mann-Whitney U test.

Table 44 Training Test Statistics (Inefficacy)

	PEMean
Mann-Whitney U	3388.000
Wilcoxon W	5873.000
Z	-1.366
Asymp. Sig. (2-tailed)	.172

a Grouping Variable: Training

The p-value of .172 is not less than .05, so null hypotheses H13c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who felt they received adequate training vs. those who did not.

Job Security.

H14a: There is no difference in the level of emotional exhaustion in IT workers who feel they have job security vs. those who do not.

H14b: There is no difference in the level of cynicism in IT workers who feel they have job security vs. those who do not.

H14c: There is no difference in the level of personal accomplishment in IT workers who feel they have job security vs. those who do not.

These hypotheses were evaluated by question 14 ("I feel that my job is secure.") on the survey. First, emotional exhaustion is evaluated using the Mann-Whitney U test.

Table 45 Job Security Test Statistics (Emotional Exhaustion)

Test Statistics[a]

	EXMean
Mann-Whitney U	3530.500
Wilcoxon W	10551.500
Z	-.385
Asymp. Sig. (2-tailed)	.700

a. Grouping Variable: JobSecurity

The p-value of .700 is greater than .05, so null hypothesis H14a is not rejected. There was insufficient evidence to conclude a difference exists in the emotional exhaustion scores of IT workers who felt they had job security vs. those who did not. Next, cynicism is examined using the Mann-Whitney U test.

Table 46 Job Security Test Statistics (Cynicism)

Test Statistics[a]

	CYMean
Mann-Whitney U	2909.000
Wilcoxon W	9930.000
Z	-2.290
Asymp. Sig. (2-tailed)	.022

a. Grouping Variable: JobSecurity

The p-value of .022 is less than .05, so null hypothesis H14b is rejected. The IT workers who felt they did not have job security had significantly higher cynicism scores than the IT workers who did feel they had job security. Finally, professional efficacy is evaluated using the Mann-Whitney U test.

Table 47 Job Security Test Statistics (Inefficacy)

Test Statistics[a]

	PEMean
Mann-Whitney U	2752.500
Wilcoxon W	9773.500
Z	-2.746
Asymp. Sig. (2-tailed)	.006

a. Grouping Variable: JobSecurity

The p-value of .006 is less than .05, so null hypothesis H14c is rejected. The IT workers who felt they did not have job security had significantly higher professional efficacy scores (indicating lower professional efficacy) than the IT workers who felt they had job security.

"On Call".

H15a: There is no difference in the level of emotional exhaustion in IT workers who have to be "on call" at least once a month vs. those who do not.

H15b: There is no difference in the level of cynicism in IT workers who have to be "on call" at least once a month vs. those who do not.

H15c: There is no difference in the level of personal accomplishment in IT workers who have to be "on call" at least once a month vs. those who do not.

These hypotheses were evaluated by question 5 ("On average, I am "on call" _____ days per month.") on the survey. First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 48 On Call Test Statistics (Emotional Exhaustion)

	EXMean
Mann-Whitney U	3656.000
Wilcoxon W	5801.000
Z	-.147
Asymp. Sig. (2-tailed)	.883

a Grouping Variable: OnCall

The p-value of .883 is not less than .05, so null hypothesis H15a is not rejected. There was insufficient evidence to conclude a difference exists in the emotional exhaustion scores of IT workers who were on call at least one day per month vs. those who were not. Next, cynicism is examined.

Table 49 On Call Test Statistics (Cynicism)

	CYMean
Mann-Whitney U	3289.000
Wilcoxon W	5434.000
Z	-1.267
Asymp. Sig. (2-tailed)	.205

a Grouping Variable: OnCall

The p-value of .205 is not less than .05, so null hypothesis H15b is not rejected. There was insufficient evidence to conclude a difference exists in the cynicism scores of IT workers

who had to be on call at least one day per month vs. those who did not. Finally, professional efficacy is examined using the Mann-Whitney U test.

Table 50 On Call Test Statistics (Inefficacy)

	PEMean
Mann-Whitney U	2676.500
Wilcoxon W	4821.500
Z	-3.108
Asymp. Sig. (2-tailed)	.002

a Grouping Variable: OnCall

The p-value of .002 is less than .05, so null hypothesis H15c is rejected. IT workers who are on call at least one day per month have lower professional efficacy scores, indicating that they are experiencing a lack of personal accomplishment.

Working with Offshore Employees.

H16a: There is no difference in the level of emotional exhaustion in IT workers who communicate with offshore employees at least once per week vs. those who do not.

H16b: There is no difference in the level of cynicism in IT workers who communicate with offshore employees at least once per week vs. those who do not.

H16c: There is no difference in the level of personal accomplishment in IT workers who communicate with offshore employees at least once per week vs. those who do not.

These hypotheses were evaluated by question 6 ("On average, I communicate with offshore employees _____ days per week.") on the survey. First, emotional exhaustion is examined using the Mann-Whitney U test.

Table 51 Offshore Test Statistics (Emotional Exhaustion)

	EXMean
Mann-Whitney U	940.000
Wilcoxon W	14635.000
Z	-1.543
Asymp. Sig. (2-tailed)	.123

a Grouping Variable: OffShore

The p-value of .123 is not less than .05, so null hypothesis H16a is not rejected. There was insufficient evidence to conclude a difference exists in the emotional exhaustion scores of IT workers who communicated with offshore employees vs. those who did not. Next, cynicism is examined using the Mann-Whitney U test.

Table 52 Offshore Test Statistics (Cynicism)

	CYMean
Mann-Whitney U	1163.000
Wilcoxon W	1283.000
Z	-.392
Asymp. Sig. (2-tailed)	.695

a Grouping Variable: OffShore

The p-value of .695 123 is not less than .05, so null hypothesis H16b is not rejected. There was insufficient evidence to conclude a difference exists in the cynicism scores of IT workers who communicated with offshore employees vs. those who did not. Finally, professional efficacy is examined using the Mann-Whitney U test.

Table 53 Offshore Test Statistics (Inefficacy)

	PEMean
Mann-Whitney U	1162.000
Wilcoxon W	1282.000
Z	-.394
Asymp. Sig. (2-tailed)	.694

a Grouping Variable: OffShore

The p-value of .694 is not less than .05, so null hypothesis H16c is not rejected. There was insufficient evidence to conclude a difference exists in the professional efficacy scores of IT workers who communicated with offshore employees vs. those who did not.

Analyses of Demographic Variables

Additional analyses were conducted on possible relationships between the demographic variables and scores from the three burnout subscales. The demographic variables investigated

First, a crosstabulation of organizational tenure with each of the burnout subscale averages is presented.

Table 54 Organizational Tenure and Burnout Subscale Averages Crosstabulation

OrgTenure		EXMean	CYMean	PEMean
Less than 1 year	Mean	3.9333	2.6667	2.1667
	N	6	6	6
	Std. Deviation	.41312	.25820	.77460
1-4 years	Mean	3.2737	2.0439	2.2105
	N	57	57	57
	Std. Deviation	1.20394	1.11416	.80704
5-9 years	Mean	2.6047	2.1279	2.1957
	N	86	86	86
	Std. Deviation	1.23020	1.18181	.87902
10 or more years	Mean	2.4000	2.1371	1.5699
	N	31	31	31
	Std. Deviation	1.21326	1.25472	.52840
Total	Mean	2.8256	2.1208	2.0917
	N	180	180	180
	Std. Deviation	1.25836	1.15293	.83143

The crosstabulation in Table 54 shows that IT workers in this sample who had been with their organizations less than one year reported the highest levels of emotional exhaustion, and the mean scores for emotional exhaustion drop incrementally the longer the IT workers has been with the organization. Cynicism scores are also highest in those workers who had been with their organizations less than 1 year. Professional efficacy scores were lowest in workers who had been with their organizations 10 or more years, indicating these workers experienced the greatest lack of personal accomplishment.

The crosstabulation in Table 55 shows the mean scores for each of the burnout subscales, categorized by the length of time the worker had worked in IT overall.

Table 55 IT Tenure and Burnout Subscale Averages Crosstabulation

ITTenure		EXMean	CYMean	PEMean
1-4 years	Mean	3.4174	1.7826	2.0797
	N	23	23	23
	Std. Deviation	1.41410	.97498	.75690
5-9 years	Mean	2.7567	2.0042	2.3000
	N	60	60	60
	Std. Deviation	1.28464	1.03077	.91637
10 or more years	Mean	2.7278	2.2732	1.9656
	N	97	97	97
	Std. Deviation	1.17622	1.24430	.77353
Total	Mean	2.8256	2.1208	2.0917
	N	180	180	180
	Std. Deviation	1.25836	1.15293	.83143

This crosstabulation shows that just as in the organizational tenure crosstabulation, the emotional exhaustion scores were higher for the workers in this sample who had worked in IT for a shorter time. Cynicism scores were just the opposite with the highest cynicism scores seen in the workers who had been in IT for 10 or more years. Professional efficacy scores were

relatively even, though the lowest levels of professional efficacy were seen in the IT workers who had IT tenure of 10 or more years, indicating they had a lack of personal accomplishment.

The crosstabulation shown in Table 56 presents the mean burnout subscale scores for each education level.

Table 56 Education Level and Burnout Subscale Average Crosstabulation

Educ		EXMean	CYMean	PEMean
High school	Mean	3.1481	2.5926	1.8704
	N	27	27	27
	Std. Deviation	1.48696	1.55994	.76980
Associates	Mean	2.5842	1.8487	2.0088
	N	38	38	38
	Std. Deviation	.94197	.81692	.65754
Bachelors	Mean	2.8237	2.0887	2.2151
	N	93	93	93
	Std. Deviation	1.19958	1.10621	.87662
Masters	Mean	2.8545	2.1477	1.9848
	N	22	22	22
	Std. Deviation	1.62853	1.16409	.93564
Total	Mean	2.8256	2.1208	2.0917
	N	180	180	180
	Std. Deviation	1.25836	1.15293	.83143

This crosstabulation shows that IT workers in this sample with Master's, Bachelor's, or Associate's degrees have similar emotional exhaustion levels, but the emotional exhaustion levels for those IT workers with only a high school diploma are higher. IT workers having a high school diploma as their highest degree also have the highest mean cynicism score and the lowest professional efficacy scores (indicating a lack of personal accomplishment).

Finally, age, hours worked in the office, and hours worked at home were analyzed to determine their correlations with emotional exhaustion, cynicism, and professional efficacy scores. The results of the Spearman's rank correlation are shown in table 57.

Table 57 Correlations of Demographics and Burnout Subscales

		Age	Hours Office	Hours Home	PEMean	CYMean	EXMean
Age	Correlation Coefficient	1.000	-.219(**)	-.119	-.023	.216(**)	.065
	Sig. (2-tailed)	.	.003	.114	.763	.004	.390
	N	178	178	178	178	178	178
HoursOffice	Correlation Coefficient	-.219(**)	1.000	.123	-.256(**)	-.135	.067
	Sig. (2-tailed)	.003	.	.101	.001	.070	.371
	N	178	180	180	180	180	180
HoursHome	Correlation Coefficient	-.119	.123	1.000	-.346(**)	-.170(*)	.055
	Sig. (2-tailed)	.114	.101	.	.000	.022	.460
	N	178	180	180	180	180	180
PEMean	Correlation Coefficient	-.023	-.256(**)	-.346(**)	1.000	.335(**)	.247(**)
	Sig. (2-tailed)	.763	.001	.000	.	.000	.001
	N	178	180	180	180	180	180
CYMean	Correlation Coefficient	.216(**)	-.135	-.170(*)	.335(**)	1.000	.526(**)
	Sig. (2-tailed)	.004	.070	.022	.000	.	.000
	N	178	180	180	180	180	180
EXMean	Correlation Coefficient	.065	.067	.055	.247(**)	.526(**)	1.000
	Sig. (2-tailed)	.390	.371	.460	.001	.000	.
	N	178	180	180	180	180	180

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

There is a significant positive correlation between age and cynicism. There are significant negative correlations between hours worked at home and professional efficacy and cynicism. There is also a significant negative correlation between hours worked in the office and professional efficacy.

CHAPTER 5: CONCLUSION

This chapter includes a discussion of the results of this study and conclusions that may be drawn from the results. Limitations of the study as well as recommendations for future research are also described.

Discussion of Results

Consistent with the literature indicating that IT workers experience job burnout at a high rate (McGee, 2003; Polok, 1990), the IT workers in the sample for this study had relatively high scores on two of the burnout subscales – emotional exhaustion and cynicism. Emotional exhaustion levels were fairly evenly distributed between low, middle, and high (as shown in Table 47) burnout levels. Cynicism levels were somewhat more skewed toward the high classification, but professional efficacy scores were all in the high category, indicating that all of the respondents felt they were able to be personally effective in their jobs. Perhaps the IT workers that survived the turbulence in the industry in the early 2000s have emerged with a strong sense of personal pride and accomplishment, but feel the strain in terms of exhaustion and cynicism.

Research Question One

The first research question asked, "What organizational and job factors best predict burnout of IT workers?" This question was examined through analysis of several possible factors. Each of these factors and their significant correlations to emotional exhaustion, cynicism, and professional efficacy are summarized in Table 58.

Table 58 Summary of Organizational Factors (X=significant correlation)

Variable Name	Emotional Exhaustion	Cynicism	Professional Efficacy
role ambiguity	X	X	
role conflict	X	X	
quant work overload	X	X	
qual work overload			
autonomy			
org politics	X	X	X
fairly rewarded	X	X	
manager understands	X	X	
menial tasks	X	X	X
feel respected			
promotion prospects	X	X	
training			
job security		X	X
on call			X
offshore			

Of these organizational factors, feeling that organizational politics interferes with work and having menial tasks divert attention from "real" work were the only two factors that significantly impacted all three burnout dimensions. It can be said that these two factors best predict burnout; however, role ambiguity, role conflict, job security, quantitative work overload, having reasonable promotion prospects, having a manager who understands the work, and feeling fairly rewarded are all significantly correlated to two of the three burnout dimensions. These factors are also important to consider in predicting burnout.

The four factors that are significant in predicting professional inefficacy are organizational politics, menial tasks, job security, and being on call at least once per month. These results are consistent with the personal experience of this researcher. It may be difficult to feel that work is being accomplished when organizational politics and menial tasks interfere. A lack of job security could also interfere with motivation to accomplish tasks at work. Having to

be on call also serves as another possible interruption; getting called to work while on call often involves unexpected troubleshooting for problems that might not be quickly resolved while other work accumulates.

It might be somewhat surprising that the factor that has been most often cited in the literature as a correlate to burnout, work overload, is not shown in this study to impact all three burnout dimensions. In fact, qualitative work overload (i.e., feeling that work expectations exceed the worker's skill level) was not shown to impact any of the dimensions. This may be further evidence of the IT workers' sense of confidence and pride in their abilities although they may have too much work to do in the given timeframes.

Many of the findings related to organizational factors are in agreement with findings in prior research. Sethi et al. (1999) demonstrated that role conflict and role ambiguity are positively correlated with burnout, and the present research reinforces that finding. Another parallel is seen in Sethi et al.'s finding that organizational commitment is related to burnout. Job security is related to organizational commitment, and the results of this study show that job security is in fact related to professional efficacy and cynicism.

As was noted above, some of the findings were surprising in light of the findings of prior research. Qualitative work overload has been shown to be related to a variety of strain symptoms including burnout (Beehr & Newman, 1978; Maslach et al., 2001; Miller & Ellis, 1990); however, the present findings found no evidence of this relationship. This might again point to the sense of accomplishment of the workers in the sample; the item addressing qualitative work overload on the survey stated, "The requirements of my job exceed my skill level," and the IT workers sampled appear quite confident in their skill levels.

Research Question Two

The second research question asked, "What individual factors best predict burnout of IT workers?" This question was evaluated in testing factors including mental stimulation at work, age, hours worked at home, and hours worked at the office. The results of these tests are summarized in Table 59.

Table 59 Summary of Individual Factors (X=significant correlation)

Variable Name	Emotional Exhaustion	Cynicism	Professional Efficacy
mental stimulation			X
age		X	
hours at home			X
hours at office			X

These results indicate that none of the individual factors tested are good predictors of burnout. This finding is consistent with burnout literature that has found that antecedents to burnout tend to be situational factors rather than individual factors (Cherniss, 1993; Maslach & Schaufeli, 1993). It is interesting to note that there is a correlation between hours worked and professional efficacy; the higher numbers of hours worked at home or in the office are related to lower levels of professional efficacy. In other words, the longer the IT worker works, the less they feel they have accomplished.

Crosstabulations of other demographic variables with the burnout subscales also revealed some perhaps surprising results. The longer the IT worker had been with the same organization, the less likely they were to be experiencing emotional exhaustion. Perhaps the steep learning curve the can be involved when one is fairly new in an organization causes exhaustion. On the other hand, workers who had the longest careers in IT (across all organizations) were most likely

to be cynical. This finding parallels the finding that age is positively correlated with cynicism; this may be an indication that workers simply become more cynical as they get older. Research does indicate that demographic factors do impact cynicism levels; however, Mirvis and Kanter (1991) found that workers age 55 and over were only slightly more likely to be cynical than workers age 18 to 25. In addition, IT workers having a highest educational level of "high school" were most likely to be experiencing emotional exhaustion, and lack of personal accomplishment. It is reasonable to assume that further education better equips a worker with the coping skills and technical skills to meet the demands of the job without becoming exhausted.

Implications for Practitioners

The findings of this study implicate organizational politics as a correlate of burnout. If IT managers or corporate level managers are concerned about burnout or are having problems that might be consequences of a burnout problem in their organizations, steps to mitigate interference from organizational politics should be taken.

The findings of this study also strongly implicate the problem of having menial tasks divert attention from "real" work as a correlate of burnout. When considered along with other factors that were implicated such as role conflict and role ambiguity, it is not difficult to envision how this problem related to burnout evolves. Nearly three-fourths of the respondents claimed to be spending too much time on menial tasks. Workers may be interrupted with tasks they deem menial and then receive conflicting or ambiguous messages about what work is has highest priority or how they should be spending their time at work, and this uncertainty and feelings of inefficacy could certainly lead to emotional exhaustion. To avoid burnout, practitioners must be diligent in prioritizing the projects and tasks that become responsibilities of IT workers.

Recommendations for Future Research

This research has answered two questions but reveals opportunities for other interesting research into burnout of IT workers. Because the literature indicates that individual factors are not strongly correlated to burnout levels, this study did not consider many individual or demographic factors. However, if a model were to be developed to predict burnout, other individual factors must be considered. For example, locus of control is indicated in the literature as a correlate of burnout (Kalbers & Fogerty, 2005), and this and other individual factors might be considered in combination with organizational factors to determine a model for predicting burnout.

A limitation of this study is that the vast majority of the IT workers in the sample did not communicate with offshore employees. Though the organizations varied in size and industry, a commonality among all but one of the organizations was that work with offshore employees was very limited. However, the focus groups strongly indicated that communicating with offshore employees caused frustration, exhaustion, and inefficacy. Industry experts have posited that the IT workers that remain after co-workers have lost their jobs to offshore employees are likely to have very low morale and dramatically decreased productivity (Overby, 2003). Researchers have demonstrated that outsourcing negatively influenced job satisfaction and turnover intention of technical managers (Kennedy, Holt, Ward, & Rehg, 2002). Though the results of the present study showed no statistical relationship between working with offshore employees and any of the burnout dimensions, further research could explore this potential correlation with a different sample of IT workers.

It would be interesting to compare burnout levels of IT workers between industries or between organizations in the same industry. As the surveys were distributed in several of the

participating organizations in this study, many of the IT workers expressed their feelings of exhaustion, cynicism, and inefficacy verbally to the researcher. The difference in atmospheres at the different organizations was often striking, and a quantitative or qualitative study examining the organizational cultural differences and correlations with the dimensions of burnout might also be conducted.

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APPENDIX A

Thank you for taking the time to complete this questionnaire that is designed to examine burnout of IT professionals. The questionnaire is anonymous, and individual results will be kept confidential.

Please circle the most accurate response.

1. I have been working in IT at this organization:	Less than 1 year	1-4 years	5-9 years	10 or more years	
2. I have had a career working in IT (total across all organizations for which you have worked):	Less than 1 year	1-4 years	5-9 years	10 or more years	
3. My highest level of education completed is:	High School	Associate's degree	Bachelor's degree	Master's degree	Doctoral degree
4. My current job responsibilities are primarily in the area of:	Help Desk / Support	Software / Programming	IT manager	Networking / Sys admin	Database

Please fill in the blanks with the most accurate number.

5. On average, I am "on call" _____ days per month.
6. On average, I communicate with offshore employees _____ days per week.
7. On average, I work in the office_____ hours per week.
8. On average, I work from home _____ hours per week.
9. I am currently _____ years old.

Please indicate the most accurate response for each question.

	Strongly Agree	Agree	No opinion	Disagree	Strongly Disagree
10. The requirements of my job exceed my skill level.					
11. My work is prioritized; not everything is an "emergency".					
12. I get mixed messages from different people about what I should be doing with my time.					
13. I participate in the decisions about how I do my work.					
14. I feel that my job is secure.					
15. My manager understands the work that I do.					
16. I have too much work to complete in the given timeframes.					

17. Organizational politics interfere with my work.					
18. Menial tasks divert my attention from my "real" work.					
19. I am fairly rewarded for the effort I put into my work.					
	Strongly Agree	Agree	No opinion	Disagree	Strongly Disagree
20. I feel respected at work.					
21. I feel mentally stimulated at work.					
22. I have reasonable promotion prospects in this organization.					
23. I receive adequate training to do my job.					

The remainder of the survey includes 15 questions of the MBI-GS.

APPENDIX B

Table B1 Role Ambiguity Group Statistics (Emotional Exhaustion)

Group Statistics

	RoleAmbig	N	Mean	Std. Deviation	Std. Error Mean
EXMean	Yes	67	3.3463	1.33557	.16317
	No	113	2.5168	1.10509	.10396

Table B2 Role Ambiguity Group Statistics (Cynicism)

Group Statistics

	RoleAmbig	N	Mean	Std. Deviation	Std. Error Mean
CYMean	Yes	67	2.5709	1.43073	.17479
	No	113	1.8540	.85155	.08011

Table B3 Role Ambiguity Group Statistics (Inefficacy)

Group Statistics

	RoleAmbig	N	Mean	Std. Deviation	Std. Error Mean
PEMean	Yes	67	2.2313	.88997	.10873
	No	113	2.0088	.78706	.07404

Table B4 Role Conflict Group Statistics (Emotional Exhaustion)

Group Statistics

	RoleConflict	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	100	2.4080	1.21437	.12144
	Yes	80	3.3475	1.11503	.12466

Table B5 Role Conflict Group Statistics (Cynicism)

Group Statistics

	RoleConflict	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	100	1.8925	.97588	.09759
	Yes	80	2.4063	1.29225	.14448

Table B6 Role Conflict Group Statistics (Inefficacy)

Group Statistics

	RoleConflict	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	100	1.9600	.69069	.06907
	Yes	80	2.2563	.95869	.10718

Table B7 Quantitative Work Overload Group Statistics (Emotional Exhaustion)

Group Statistics

	QuantOverload	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	55	2.2400	1.09504	.14766
	Yes	125	3.0832	1.24283	.11116

Table B8 Quantitative Work Overload Group Statistics (Cynicism)

Group Statistics

	QuantOverload	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	55	1.8000	1.03123	.13905
	Yes	125	2.2620	1.17897	.10545

Table B9 Quantitative Work Overload Group Statistics (Inefficacy)

Group Statistics

	QuantOverload	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	55	2.2212	.82593	.11137
	Yes	125	2.0347	.83072	.07430

Table B10 Qualitative Work Overload Group Statistics (Emotional Exhaustion)

Group Statistics

	QualOverload	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	151	2.7616	1.22544	.09973
	Yes	29	3.1586	1.39323	.25872

Table B11 Qualitative Work Overload Group Statistics (Cynicism)

Group Statistics

	QualOverload	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	151	2.1407	1.13599	.09245
	Yes	29	2.0172	1.25344	.23276

Table B12 Qualitative Work Overload Group Statistics (Inefficacy)

Group Statistics

	QualOverload	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	151	2.1291	.81495	.06632
	Yes	29	1.8966	.90239	.16757

Table B13 Autonomy Group Statistics (Emotional Exhaustion)

Group Statistics

	Autonomy	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	24	3.1500	1.17990	.24085
	Yes	156	2.7756	1.26620	.10138

Table B14 Autonomy Group Statistics (Cynicism)

Group Statistics

	Autonomy	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	24	2.0417	1.35868	.27734
	Yes	156	2.1330	1.12250	.08987

Table B15 Autonomy Group Statistics (Inefficacy)

Group Statistics

	Autonomy	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	24	2.3611	.82776	.16897
	Yes	156	2.0502	.82684	.06620

Table B16 Organizational Politics Group Statistics (Emotional Exhaustion)

Group Statistics

	Politics	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	45	2.2400	.95308	.14208
	Yes	134	3.0254	1.29346	.11174

Table B17 Organizational Politics Group Statistics (Cynicism)

Group Statistics

	Politics	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	45	1.7000	.70630	.10529
	Yes	134	2.2668	1.24083	.10719

Table B18 Organizational Politics Group Statistics (Inefficacy)

Group Statistics

	Politics	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	45	1.8407	.55272	.08239
	Yes	134	2.1754	.89492	.07731

Table B19 Fair Reward Group Statistics (Emotional Exhaustion)

	FairReward	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	75	3.1920	1.32805	.15335
	Yes	105	2.5638	1.14212	.11146

Table B20 Fair Reward Group Statistics (Cynicism)

	FairReward	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	75	2.5600	1.22739	.14173
	Yes	105	1.8071	.98867	.09648

Table B21 Manager Understands Group Statistics (Emotional Exhaustion)

Group Statistics

	MgrUnderstands	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	37	3.4595	1.35636	.22298
	Yes	143	2.6615	1.18232	.09887

Table B23 Manager Understands Group Statistics (Cynicism)

Group Statistics

	MgrUnderstands	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	37	3.0811	1.39823	.22987
	Yes	143	1.8724	.93676	.07834

Table B24 Manager Understands Group Statistics (Inefficacy)

Group Statistics

	MgrUnderstands	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	37	2.2523	.92013	.15127
	Yes	143	2.0501	.80517	.06733

Table B25 Divert Attention Group Statistics (Emotional Exhaustion)

Group Statistics

	DivertAttention	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	47	2.0468	.55044	.08029
	Yes	132	3.1061	1.32629	.11544

Table B26 Divert Attention Group Statistics (Cynicism)

Group Statistics

	DivertAttention	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	47	1.5745	.59872	.08733
	Yes	132	2.3201	1.24112	.10803

Table B27 Divert Attention Group Statistics (Inefficacy)

Group Statistics

	DivertAttention	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	47	1.8085	.61873	.09025
	Yes	132	2.1919	.87818	.07644

Table B28 Respected Group Statistics (Emotional Exhaustion)

	Respected	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	37	3.1189	1.32703	.21816
	Yes	143	2.7497	1.23345	.10315

Table B29 Respected Group Statistics (Cynicism)

	Respeted	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	37	2.5338	1.43634	.23613
	Yes	143	2.0140	1.04720	.08757

Table B30 Respected Group Statistics (Inefficacy)

	Respected	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	37	2.0721	.79207	.13022
	Yes	143	2.0967	.84393	.07057

Table B31 Stimulated Group Statistics (Emotional Exhaustion)

	Stimulated	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	39	2.9846	1.46567	.23469
	Yes	141	2.7816	1.19688	.10080

Table B32 Stimulated Group Statistics (Cynicism)

	Stimulated	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	39	2.3333	1.20489	.19294
	Yes	141	2.0621	1.13553	.09563

Table B33 Stimulated Group Statistics (Inefficacy)

	Stimulated	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	39	2.3846	.88039	.14097
	Yes	141	2.0106	.80184	.06753

Table B34 Promotion Prospects Group Statistics (Emotional Exhaustion)

	Promotion	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	127	2.9575	1.35005	.11980
	Yes	53	2.5094	.94345	.12959

Table B35 Promotion Prospects Group Statistics (Cynicism)

	Promotion	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	127	2.3602	1.20583	.10700
	Yes	53	1.5472	.75964	.10435

Table B36 Promotion Prospects Group Statistics (Inefficacy)

	Promotion	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	127	2.0787	.87359	.07752
	Yes	53	2.1226	.72733	.09991

Table B37 Training Group Statistics (Emotional Exhaustion)

	Training	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	70	2.8286	1.10193	.13171
	Yes	110	2.8236	1.35341	.12904

Table B38 Training Group Statistics (Cynicism)

	Training	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	70	1.9500	.98319	.11751
	Yes	110	2.2295	1.24108	.11833

Table B39 Training Group Statistics (Inefficacy)

	Training	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	70	2.0024	.85338	.10200
	Yes	110	2.1485	.81598	.07780

Table B40 Job Security Group Statistics (Emotional Exhaustion)

Group Statistics

	JobSecurity	N	Mean	Std. Deviation	Std. Error Mean
EXMean	No	62	2.8871	1.32943	.16884
	Yes	118	2.7932	1.22396	.11267

Table B41 Job Security Group Statistics (Cynicism)

Group Statistics

	JobSecurity	N	Mean	Std. Deviation	Std. Error Mean
CYMean	No	62	2.4355	1.32515	.16829
	Yes	118	1.9555	1.01886	.09379

Table B42 Job Security Group Statistics (Inefficacy)

Group Statistics

	JobSecurity	N	Mean	Std. Deviation	Std. Error Mean
PEMean	No	62	2.3091	.82142	.10432
	Yes	118	1.9774	.81705	.07522

Table B43 On Call Group Statistics (Emotional Exhaustion)

	OnCall	N	Mean	Std. Deviation	Std. Error Mean
EXMean	0	114	2.8281	1.25504	.11755
	1	65	2.8185	1.28341	.15919

Table B44 On Call Group Statistics (Cynicism)

	OnCall	N	Mean	Std. Deviation	Std. Error Mean
CYMean	0	114	2.1820	1.13779	.10656
	1	65	2.0038	1.18544	.14704

Table B45 On Call Group Statistics (Inefficacy)

	OnCall	N	Mean	Std. Deviation	Std. Error Mean
PEMean	0	114	2.2310	.80726	.07561
	1	65	1.8462	.82879	.10280

Table B46 Offshore Group Statistics (Emotional Exhaustion)

	OffShore	N	Mean	Std. Deviation	Std. Error Mean
EXMean	0	165	2.7745	1.23094	.09583
	1	15	3.3867	1.45890	.37669

Table B47 Offshore Group Statistics (Cynicism)

	OffShore	N	Mean	Std. Deviation	Std. Error Mean
CYMean	0	165	2.1318	1.15147	.08964
	1	15	2.0000	1.20268	.31053

Table B48 Offshore Group Statistics (Inefficacy)

	OffShore	N	Mean	Std. Deviation	Std. Error Mean
PEMean	0	165	2.0990	.82596	.06430
	1	15	2.0111	.91605	.23652