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An Analysis of the Relationship Between Organizational Culture and Occupational Stress: Perceptions of Employees Following a Merger

Brent J. Pasula

Dissertation submitted to:
Edith Cowan University
in fulfillment of the requirements
for the degree of
Doctor of Philosophy
in
Occupational Health and Safety

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Dr. Milos Nedved, PhD., Principal Supervisor

Submitted to: Graduate School, Edith Cowan University

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An Analysis of the Relationship Between Organizational Culture and Occupational Stress: Perceptions of Employees Following a Merger

Brent J. Pasula

ABSTRACT

There is a growing body of literature regarding the physiological and psychological effects of stress resulting from the increasing concern about occupational stress. This study attempts to fill an identified gap within epidemiologic literature by examining whether organizational culture has an influence on the level of occupational stress, perceived by employees, following the merger of their company with another. To explore this relationship, five research questions were examined using a data gathering process that consisted of a self-administered survey to measure psychosomatic strain, stress-inducing work demands, and organizational culture.

The data generated from the survey underwent hierarchical analysis to determine the factor loading of organizational culture within the proposed work stress framework. Statistical analyses were completed with the use of the statistical package Analysis of Moment Structures 5.0 (AMOS 5.0). The population for this study consisted of full-time employees of ExxonMobil Canada who worked for the company at least one year prior to the distribution of the survey. The survey was distributed electronically to the entire population, including management, using the company's electronic mail system. Of this population, 49% of the employees participated in the study. Each participant

completed an online questionnaire and either faxed or e-mailed their responses to the author. The data was compiled using Microsoft Excel and analyzed with AMOS 5.0.

AMOS 5.0 was used to create a structural equation model of the work stress framework to investigate the influence of organizational culture within the model. The results of this analysis suggest that organizational culture has a comprehensive and beneficial effect throughout the work stress framework. The analysis showed that Organizational culture has a strong loading on both decision latitude and psychosomatic strains. A single unit decrease of the organizational culture measure drove a 0.536 increase in self-reported levels of psychosomatic strains. Organizational culture is correlated with how a worker perceives their decision latitude but it does not appear to influence how the worker perceives their psychological job demands. This suggests that Organizational culture acts as a buffer to job stressors rather than influencing the individual's perception of the stressor itself.

Of the nine organizational characteristics assessed in this study leadership has the greatest influence on the work stress framework and plays a key role in predicting psychosomatic strains. Employees who perceive their leaders as effective communicators that provide clear direction and who care about people and not just financial performance reported significantly few psychosomatic strains than those individuals who had more negative perceptions of their leaders. As such, for a stress reduction program to be effective, health care practitioners and corporate employee assistance programs should focus their energies on developing strategies that foster greater communication throughout the organization. Some aspects of this strategy should include a means to provide employees with clear direction, keep employees informed regarding activities that impact their job function, and involve the development of mechanisms that allow employees to communicate their concerns and ideas to management. Accordingly, any commitment made by leadership must have follow up in order to maintain a trusting, high performance working environment.

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To my parents, Mervin and Marlene, thank you for encouraging me to pursue my dreams, setting an example for me to follow as a husband, a parent, a worker, and a student. Thank you for instilling in me an appreciation for education and instilling its value in me. Mom, thank you for the hard work you put into reviewing and critiquing my writing.

To my sons, Matthew and Tyler, my sources of inspiration, who always make me smile and have helped me to know what is truly important in life. I hope this will serve as an example to you to set high goals for yourselves and to persevere until you attain them.

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CHAPTER I

INTRODUCTION

Introduction to the problem

It is well documented that the modern work environment can either contribute to or mitigate against negative outcomes of workplace stress. The nature of the work, environmental conditions, and interpersonal relationships with colleagues all may influence the experience of stress in the workplace. As a result, relationship between job characteristics and employee well-being has attracted considerable attention in job stress literature.

A number of conceptual models have been developed that relate job characteristics to the health and well-being of working populations (Cooper, 1998; Parker & Wall, 1998). Among these, two theoretical frameworks have been particularly successful in generating and guiding job stress research and have been emphasized in two representative work stress models: Karasek's (1979) demand-control-support model and House's (1981) framework of occupational stress. Each of these work stress models have been strongly supported with empirical research in terms of their predictability of work stress outcomes (Baker, Israel, & Schurman, 1996), and formed the foundation of many current day stress prevention programs.

In recent years there has been increasing interest in the topic of stress at work and the undesirable consequences it can have for the health and safety of individuals. Job stress may not necessarily be more prevalent now than it has been in the past, but a greater number of people are identifying it as the source of their physical problems and

as a result it is getting more attention. The effects of stress are both widespread and diverse, to the extent that many people would regard stress as the principal threat to well being in a modern industrial society. "We've identified this as a top priority issue," said National Institute of Occupational Safety and Health Director Linda Rosenstock, a physician. "The U.S. public is reporting very high levels of stress at work, and often reporting it's the largest source of stress they face. Shifting work patterns due to the global economy are aggravating these issues." (Rosenstock, 1999)

Out of the ten leading causes of death in the United States, stress is directly implicated in four. These include heart disease, strokes, injuries, and suicide. Stress is also indirectly implicated in three causes of death: cancer, chronic liver disease, and emphysema (Murray & Lopez, 1994). Until recently, many workplace employers reasoned that if people could not handle stress, they were not tough enough for the job. Now, many companies are beginning to recognize the negative impacts of stress and have implemented counseling programs aimed at stress reduction. Many of these programs employ strategies that are totally focused on the employee. For example, many companies have initiated stress management programs to reduce stress in employees in hopes of reducing the negative impacts of stress. Unfortunately, these methods have met with only limited success (Murphy, 1988).

As with many psychological disorders, the symptoms associated with excessive stress are easier to treat than the source of the problem. If however, the treatment only concentrates on the symptoms and does not address what is causing the problem any benefit gained from the treatment will be short lived. When the treatment for stress only addresses the symptoms, and the cause of the stress remains unchanged, the manifestations of stress will tend to reoccur and over time and grow in severity. In an attempt to better understand stress in working populations researchers are beginning to focus on the antecedents of occupational stress, such as organizational culture.

Research conducted on stress is continuing to expand as the physiological and psychological outcomes are beginning to be understood to a greater degree. This has

resulted in the merging of two separate fields, one focusing on the effects of organizational demands on individual wellness and another looking at the source or context in which stressors arise, and the likely responses (Kahn & Byosierre, 1992). Individual wellness is increasingly becoming a concern within the workplace. Not only are companies beginning to recognize the direct and indirect costs of employee stress, they are also beginning to recognize the value of having a social conscience and the direct links it has to a company's performance. The programs and strategies companies utilize to mitigate against the negative impacts of stress become even more important during times of restructuring and organizational change. Research has recently identified corporate restructuring as a stressor that affects individual well being and company performance (Baruch & Woodward, 1998).

Corporate restructuring encompasses significant and rapid changes in a company's assets, capital structure or organizational structure (Singh, 1993). Changes such as the aforementioned can have a significant impact on a company's performance prior to, during the transition period, and immediately following a company's reorganization (Kesner & Dalton, 1994; Somers & Bird, 1990). When a company undergoes a reorganization, such as experienced during a merger, it can be a traumatic time for employees and it is expected that employees will report greater levels of stress. This may be due to an increase in the level of anxiety experienced by the worker as a result of the merger and is expected to vary a great deal from employee to employee.

Despite extensive research and theory generation on the topic of stress, there is still a great deal of ambiguity in the field. Part of the problem is the difficulty in operationalizing stress constructs (Mikhail, 1981). This is often the case when dealing with perceptual issues. Extensive reviews of the literature have been conducted (Edwards, Caplan & Harrison, 1998; Cordes & Dougherty, 1993; Burisch, 1993) with little progress towards arriving at conceptual agreement. Many existing stress models are static in their design (Lazarus & Launier, 1978). They treat the stress experience as a discrete occurrence, and view intervention as a one-time quick fix. Ultimately,

however, stress is less about what happens to a person and more about the reaction a person has to a perceived stressful situation. This holds true both on individual and organizational levels. Stress levels are determined by how a person perceives, processes, and responds to information combined with how the individual perceives and engages in workplace relationships.

In workplaces there should be an organizational bond of interdependence, mutual interest, interconnecting contributions, and enjoyment between employer and employee. Part of the responsibility of an organization is to see that this common bond is maintained and strengthened in all facets of workplace life including stress reduction programs. Just as any relationship requires common bonds and interests to stay healthy, so the relationship within corporations must be a shared experience. Therefore, if stress reduction programs are aimed solely at the individual employee without addressing the impact of business practices, processes, and the organizational structure and culture as a whole on the employee, then there is a higher likelihood that programs will fail by not addressing the root issues.

An effective, comprehensive stress reduction strategy involves not only ongoing training and practice in effective employee coping skills, but also identifying and addressing sources of stress in business practices and processes, organizational structure, and the role of organizational culture in the work stress framework. Research has indicated that the impact of organizational change on employee stress levels has received very little attention (Foster-Fisherman & Keys, 1997).

Therefore, the main purpose of this study is to present a framework that depicts how stress at the individual employee level is related to cultural changes at the organizational level. The framework is dynamic and acknowledges the complex interrelationships among organizational culture, stress responses, behaviour, and perceptions. This study will present results that should provide employers with a greater insight into the relational influence between an organizational culture change and the experience of stress by employees at the workplace. For example, such insight may

provide companies with directions needed to develop clear policies and procedures that will guide their stress reduction programs.

It should be noted that not all stress is unpleasant. To be alive means to respond to the stimulation of achievement and the excitement of a challenge to be met. In fact, there is evidence in the research that suggests that people need a certain amount of stimulation and that monotony can bring on some of the same problems associated with excessive stress. Perception of an event, such as cultural changes in an organization, is key to how a person will respond to turn good stress into excessive stress, or distress. Individuals respond with different coping mechanisms to stressful situations. An individual's personality, age, sex, diet, life style, and past experiences influences their perception of whether or not an event they experience is stressful. When the event is perceived as stressful, and the situation goes unresolved, the body is kept in a constant state of activation, which increases the rate of wear and tear to biological systems (Driskell & Salas, 1996). Driskell and Salas (1996) attest to the better understanding of how the body reacts to stress. When the brain perceives danger, it triggers certain chemicals in a "fight or flight" response that heightens the heartbeat and sharpens reflexes. This reaction is preprogrammed biologically and allows for peak physical responses to dangerous situations. Everyone responds to short-lived stressful events in much the same way, regardless of whether the stressful situation is at work or home.

> "These short-lived or infrequent episodes of stress pose little risk to the individual, but when the stressful situations goes unresolved, the body is kept in a constant state of activation, which increases the rate of wear and tear to biological systems. Ultimately, fatigue or damage results, and the ability of the body to repair and defend itself can become seriously compromised" (U.S. Department of Health and Human Services, n.d., p. 10).

As a result, the longer an individual is exposed to a stressful event, the higher the likelihood that the individual will experience a stress related injury and or disease.

An individual's response to long term stressful events, such as those associated with a merger, are fairly consistent and vary little based on personality or demographics (Miller & Smith, 1997). This suggests that the effects of the work environment might have a greater influence on the employee's perception of stress than personal

characteristics regarding how the employee responds to stressors such as those associated with a reorganization (Cherniss, 1980).

A stressor can be described as an event or situation that causes non-specific physiological responses that increase the risk of various illnesses and other health problems. There are three general types of influences that can intensify or mitigate the impact the stressor can have on the individual. These include Bioecological influences; e.g., noise pollution, jet lag, inadequate lighting. Psycho-intrapersonal influences; e.g., thoughts, values, beliefs, attitudes, perceptions and social influences; e.g., socioeconomic status, daily hassles, interpersonal relationships, and life events (McGrath, 1970).

This paper examines an employee's Psycho-intrapersonal and Social influences to investigate the role of organizational culture in the employee's experience of stress following a merger. It outlines the background, theoretical and research foundations, a methodology, and the results of an investigative study that explores the relationships deemed to exist between organizational culture and the work stress framework.

Accordingly, identifying the comprehensive effects of organizational culture on work stress is important from a work stress prevention perspective. This study investigates the characteristics of culture affecting the work stress process and examines the effects of organizational culture in a framework based on a theoretical model. The proposed model is made up of a number of dependant variables, or endogenous constructs, which fluctuate according to the latent variables influencing them.

By providing insight into the antecedents of occupational stress, such as those characteristics of an organization's culture that have the greatest influence on the work stress framework, health care practitioners and corporate human resource practitioners will be able to develop more effective work stress prevention programs.

Problem Statement

The primary objective in undertaking this research is to assess the relationship that exists between organizational culture and the work stress framework. Also being examined is the influence of personality, demographics, and the home-work interface on the work stress framework. The lack of research into the relationship between psychosomatic strains and the type of organizational culture employed at the work place, along with the growing propensity to "connect" these two units, particularly during times of reorganization suggests that more information is needed about the relationship between these two factors. Therefore, this study was devised to describe the relationship that exists between organization culture and work stress by characterizing the organizational culture of the business units within ExxonMobil Canada's Upstream operations and relate differences in cultural perceptions to the level of psychosomatic strains reported by employees. In addition, the direct relationships between the organizational culture of the working unit and the level of psychosomatic strain was further analyzed in an attempt to identify mediating or moderating effects of specific organizational culture characteristics and selected demographic and personality traits.

Research Questions

The following specific research questions were similarly adopted:

Research Question 1: In what ways, if any, do the endogenous constructs analyzed in this study differ according to the demographic characteristics of the population.

Research Question 2: In what ways, if any, do the endogenous constructs analyzed in this study differ according to the personality of each of its participants.

Research Question 3: In what ways, if any, do the endogenous constructs analyzed in this study differ according to the non-work stressors experienced by each of its participants.

Research Question 4: How does organizational culture, as perceived by the worker affect the work stress framework, psychosomatic strains, and quality of sleep?

Research Question 5: What characteristics of organizational culture are closely related to the work stress framework, psychosomatic strains, and sleeping problems?

Importance of the study

The significance of this study is to identify differences in an employee's perception of organizational culture and determine how these differences are related to increases in occupational stress and psychosomatic strains. The ability to identify and quantify these differences is important in characterizing the antecedents of stress. By characterizing the antecedents of stress, health professionals will be better equipped to design effective stress reduction programs.

The physiological responses of workers to increased levels of stress have been well documented (Lundberg & Frankenhaeuser, 1999; Netterstrom, Nielsen, Kristensen, Bach & Moller, 1999; Parkes, 1999; Wilkins & Beaudet, 1998; Frese, 1985; Kasl, 1978). Stress can precipitate levels of anxiety that cause mental impairment or clinical depression (Stansfeld, North, White & Marmot, 1995). Research has also shown that stress can aggravate specific chronic diseases such as hypertension, and certain acute medical conditions such as peptic ulcers and migraines (Wilkins & Beaudet, 1998).

Further research has shown that stress can have direct organizational consequences. Some of these consequences include:

" Increased absenteeism

Increased accidents

Increased job turnover

Low Morale

Poor Work Relations

Poor Organizational Climate

Reduced Productivity" (Driskell & Salas, 1996, p. 475)

Stress on the job has been estimated to cost United States businesses $200 billion annually, while stress-related injury claims on the job have increased by 300 percent in the past fifteen years (Grazian, 1994). The relationships between stress and performance are well-documented (Driskell & Salas, 1996; Heslegrave & Colvin, 1996;

Hancock, 1986), however, attempts to design effective stress reduction programs have met with little success. In order to create effective stress reduction programs companies will have to look towards the essence of how they conduct their business and in doing so assess their organizational culture.

Accordingly, a better understanding of the relationship between organizational culture and occupational stress is an important step in being able to develop effective work stress prevention programs. The hypothesized relationship between organizational culture and work related stress is illustrated in the framework developed by the author in *Figure 1.1*. The relationships depicted in the path diagram below are assessed with the use of Structural Equation Modeling to determine the influence each factor has on the overall work stress framework. Once these relationships have been quantified the framework will be a useful tool in evaluating organizational stress and provide management with key strategies they can use to reduce the level of occupational stress within their organizations.

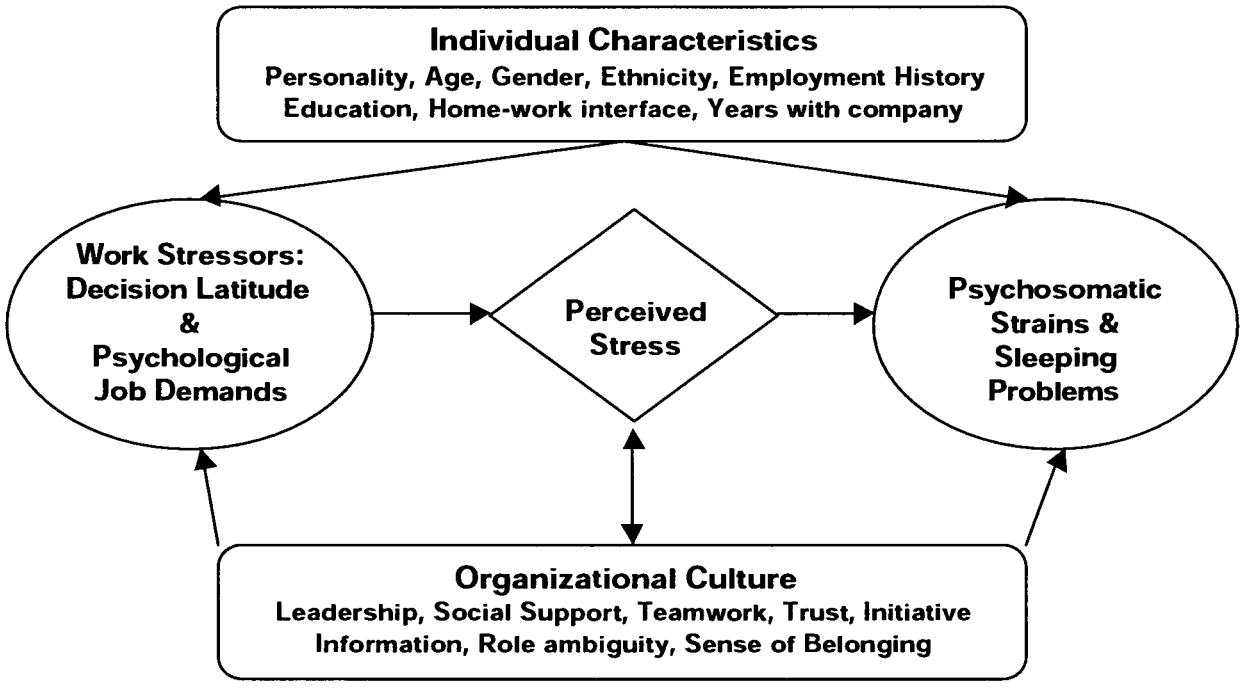

Figure 1.1: A framework of Organizational Culture and Occupational Stress.

This study also provides data useful to researchers and others interested in the patterns of psychosomatic strains and organizational culture within industry. The study's descriptive data should be useful to anyone concerned about the emerging trends of acquisitions and mergers that seem common place in the global economy. No other study could be identified in the literature that, like this study, collected and analyzed data about the organizational culture and patterns of reported psychosomatic strains. Therefore, this study adds to the knowledge base concerning the epidemiology of stress as well as the field of management and administration of upstream petroleum industries. Management practices grounded in the theory of organizational culture and patterns of reported psychosomatic strains should assist managers to develop the appropriate stress reduction programs. Consequently, there should be a shared responsibility between employers and employees for decreasing levels of stress and increasing productivity.

A great deal of the discussion presented above centred around what the organization can do to reduce the level of stress experienced by employees. It must be noted however, that the individual plays a very important role in the experience of stress and their participation in stress reduction initiatives is vital. The perceived stress an employee experiences as a result of their interaction with the work environment can vary a great deal from individual to individual and is based on host of factors. A person's stress response is driven by factors specific to the individual such as their personality and past history and by factors external to the individual such as the type of stressor experienced. In this study, participants were presented with a similar and significant stressor; the merger of their company with that of another.

According to occupational stress literature, as a result of the merger between Exxon and Mobil Oil, many employees of the merged company, ExxonMobil, should have experienced a certain degree of stress. Some employees would have perceived it as a challenge while others would have been motivated to work harder and still others may have perceived the merger as a threat to their way of life. How individuals reacted

to this stressful event was a function of their work sites organizational culture and a myriad of personal perceptions and beliefs.

This study attempts to provide further insight into the coping mechanisms used by employees during a stressful event and the role organizational culture plays in this process.

Chapter I Summary

In this section a short background of the theory and literature related to changing work environments and how these changes are impacting employee stress levels is presented. It is followed by a presentation of the problem statement. A problem statement that defines the study through five research questions for the various variables was also introduced. The study attempts to explore the influence of organizational culture on the work stress framework by assessing a variety of work place characteristics and associated psychosomatic strains. Finally, the rationale for and the significance of this study was presented which included the introduction to a theoretical model relating organizational culture to the work stress framework. Information gathered during this study should be helpful to a variety of Health care professionals and managers in their attempt to create effective stress reduction strategies.

DEFINITIONS

Several terms will be used that have special or restricted meaning. In order to ensure communication and to dispel any controversy over terminology, the author provides definitions of key terms used in this study.

AMOS

Analysis of Moment Structures. a statistical program developed by J. L. Arbuckle in 1996 that uses hierarchical analysis to conduct Structural Equation Modeling.

ANOVA

Analysis of Variance, "a statistical technique that isolates and assesses the contributions of categorical independent variables to variation in the mean of a continuous dependent variable." (Lees, 2005, np.)

Business Team Lead / Process Team Lead

Imbedded managers within the production company responsible for the direct supervision of supporting staff.

Business Units

Organizational divisions within ExxonMobil at the national level.

Chi-Square test

A statistical test to determine the probability that an observed deviation from the expected event or outcome occurs solely by chance.

Decision Latitude

Refers to the concept of job control which relates to an individual's participation in decision-making and job design (Spector, 1992).

Epidemiology

A branch of medical science that deals with the incidence, distribution, and control of disease in a population.

Endogenous Construct

Is a term used in structural equation modeling that is synonymous with dependant variable. Fluctuations in the values of endogenous constructs are said to be explained by the model because all latent variables that influence them are included in the model specification (Byrne, 2001).

Intrapsychic

"Denoting the psychological dynamics that occur inside the mind without reference to the individual's exchanges with other persons or events." (Lees, 2005, np.)

Merger Syndrome

A defensive and "fear the worst" response that results from the uncertainty and stress of a merger (Marks & Mervis, 1985, p. 51).

Organizational Culture

The feelings, beliefs, values and basic assumptions held by members of the organization, either collectively or individually, as they relate to work activities (Foster-Fishman & Keys, 1997, p. 358).

Participants

Refers to the people, involved in the research survey, who shared in the information-gathering process.

Psychosomatic Strain

Excessive physical or mental tension originating from psychological or emotional causes (Kagan & Levi, 1975, p. 243).

Results

Refers to the outcomes of the research process

Stress

The physical, emotional, or psychological responses to events that exceed the adaptive resources of an individual (Selye, 1956).

Stressor

Events or situations that cause non-specific physiological responses that increase the risk of various illnesses and other health problems (McGrath, 1970).

Type A Individual

Type A individuals are generally characterized as aggressive, achievement oriented, dynamic, hard driving, assertive, fast paced, impatient, competitive, ambitious, irritated, angry, hostile, and under time pressures (Cooper, Kirkcaldy & Brown, 1994; Jamal, 1990; Rosenman & Chesney, 1985).

Type B Individual

Type B individuals are generally characterized as casual, easygoing, and never in a rush to get things done (Bortner, 1969).

Upstream Production

Operations associated with the extractive and primary separation of crude oil and natural gas.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This review identifies key insights into the relevant research and published literature on occupational stress. The purpose of this review is to examine the body of literature on occupational stress in order to gain insights that will aid in the development of a conceptual framework for this study. Associated coping mechanisms were also identified along with psychosomatic strains, organizational culture, and the influence of extraneous variables on the outcomes of this study. Subsequently, a theoretical model relating organizational culture, stressors, and psychosomatic strains is presented.

Background to the problem

The relationship that people have with their work, and the difficulties that can arise when that relationship goes awry, have long been recognized as a significant phenomenon of the modern age. The use of the term burnout for this phenomenon began to appear with some regularity in the 1970s in the United States, especially among people working in the human services. Burnout was viewed as a form of job stress, with links to such concepts as job satisfaction, organizational commitment, and turnover.

Selye (1956) was probably the first to use the term stress in a psycho-physiological context and his definition that "stress is the nonspecific response of the body to any demand made upon it" has held of the test of time and is still used today. In

his writing Selye took pains to explain that stress, in and of itself, was neither good nor bad. Selye (1976, p. 48) states that "without stress, there would be no demand for activity and defined the total absence of stress as death". Therefore, for every activity (task), there is an optimal level of stress that is required to perform that activity. Both before and beyond this point, the level of stress is either too little or too great. When the level of stress exceeds the optimal level, in either a chronic or too intense manner, it has the potential to become distress and be harmful and damaging to the individual. Brown and Harris (1978) identify stress as the discrepancy between the demands of life situations and the capacity of the individual or group to deal with them comfortably.

Continuous exposure to stressors at work and stressful life events are major triggers of clinical depression in susceptible individuals (National Institute of Mental Health, 2001). Karasek (1979) finds that job demands and job control were the most significant work contents affecting depression in a nation-wide study. Job demands and job control in Karasek's study included the most negative aspects of daily work life. Job demands included workload, job complexity, job conflict, job ambiguity, role clarity, and interpersonal relationships at work. Job control was comprised of decision-making latitude, task variety, job autonomy, and work schedule (Karasek & Theorell, 1990).

There are two work stress models that have predominantly been applied to work stress research: Karasek's demand-control-support model (Karasek, 1979) and the framework of occupational stress (House, 1981). These two models have greatly contributed to predicting the relationship between work stresses and coping mechanisms.

The Demand-Control-Support Model (Karasek, 1979)

Karasek (1979) developed the job demands and control model from the analysis of depression data from 911 employees that participated in the U.S. Department of Labor's Quality of Employment Survey (QES) in 1969, 1972, and 1977. He found that

psychosomatic symptoms had a specific patterned distribution with the interaction effects between job demands and job control.

The job demands and control model primarily deals with the work content as a major source of stress. Karasek (1979) divides job content into two components in terms of what the individual's work entails (job demands) and what the individual can do to control their work direction. He also conceptualizes that the two constructs interact with each other to influence the workers' mental and physical health and developed a model that predicted mental strain results form the interaction of job demands and job decision latitude. The job strain model is based on the underlying theory that psychological strains results not from a single aspect of the work environment, but from the joint effects of the demands at work and the range of decision-making freedom available to the worker facing those demands (Karasek, 1979). Karasek postulates that workers experience the greatest amount of job strain in jobs associated with high demands and low decision latitude. Karasek (1979) used this theoretical concept in the development of his Job Strain Model. Karasek's Job Strain Model has been successfully used to predict the onset of coronary heart disease in nation wide surveys and is represented in *Figure 2.1.*

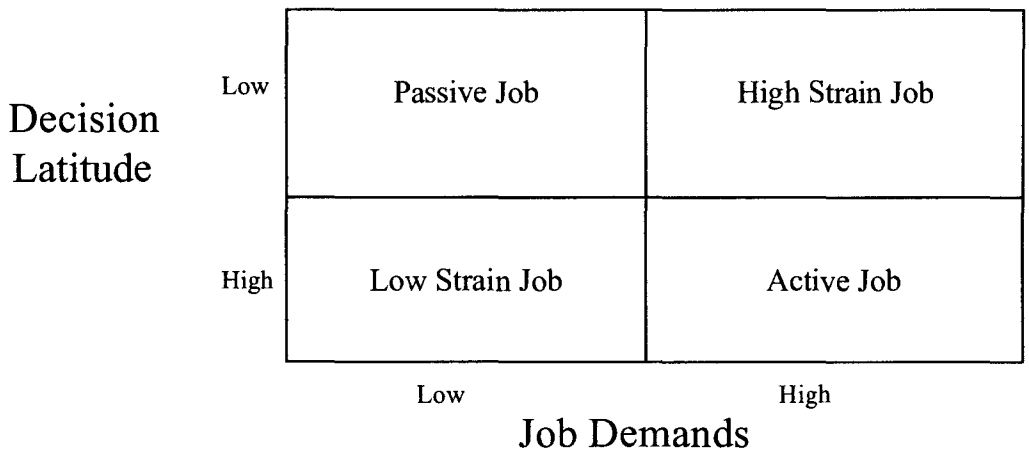

Figure 2.1: Karasek's Job Strain Model (Karasek, 1979)

From the Quality of Employment research, Karasek recognized the beneficial role of coping mechanisms such as social support on the interaction of job demands and job control as well as on health outcomes. Karasek accepted that social interaction was obviously a major component of health and behavioral reactions. As a result, he expanded the original job demands and control model to include social support as a third construct affecting health outcomes. Accordingly, the demand-control-support model (Karasek, 1979) is the modified version of the job demands and control model.

It is clear that changes in social relations between workers and changes in decision latitude are almost inseparable strategies when the job demands and control model is applied to job redesign (Karasek & Theorell, 1990). This linkage led House (1981) to develop the "participatory work design process" that suggests the work environment is a combination of job control and social support changes, implying that social support at work can enlarge the latitude of job control and beneficially affect psychological strain.

Job demands can be defined as the effort required to complete assigned tasks at work. These demands are usually a function of time and are a natural aspect of everyday work, however, job demands become stressors if they exceed an employee's ability to complete them or when the employee loses control over them. Karasek (1979) operationalizes job demands in the sense of psychological stressors at work such as requirements for working fast and hard, heavy workload, not having enough time, and having conflicting demands. Related to this, Karasek (1979) defines job control, as the working individual's potential control over his tasks and his conduct during the working day. He regards job control as workers' latitude to control diverse job demands. Karasek calls job control "decision latitude". The concept of job control has been further discussed in organizational research broadly in terms of participation in decision-making and job design (Spector, 1992).

The job demands and control model hypothesizes that there are four distinctly different kinds of psychological work experiences that are generated by the interactions

of job demands and job control. These psychological work experiences consist of: (a) high strain jobs (high demands and low control), (b) low strain jobs (low demands and high control), (c) active jobs (high demands and high control), and (d) passive jobs (low demands and low control). The main hypothesis of the demand and control model is that the lowest levels of psychological well-being and the highest levels of reported stress should be associated with the high strain group (Kristensen, 1996). Karasek (1979) hypothesizes that job demands are not in themselves harmful, but when combined with low employee control, these demands can lead to the development of psychological strain. Accordingly, active jobs only moderately raise the level of strain because much of the energy experienced by the worker as a result of the stressors associated with active jobs is translated into action through effective problem solving, so in effect the employee experiences very little residual strain. This results in the level of psychological strain from active jobs being very similar to that from passive jobs (Karasek & Theorell, 1990). This lead Karasek (1979) to imply that job control is a primary construct in handling demands at work and stress outcomes.

The demand-control-support model (Karasek, 1979) adds another factor to the job demands and control model. This factor was added by the hypothesis that active participation in social life is related to lower levels of reported job strains. Accordingly, the highest risk of strain is to be expected in the group with high demands, low control, and low social support (Kristensen, 1996). In a national study using depression measures, high social support was associated with dramatically lower levels of depression. There was a clear demand-control association within each level of social support in the data. These three dimensions of work content: job demands, control, and social support were capable of predicting much of the range of total variation of depressive symptoms in the representative working population (Karasek & Theorell, 1990). This work was expanded on by House in 1981 who developed a framework for Occupational Stress.

Framework of Occupational Stress

The Framework of Occupational Stress (House, 1981) structures comprehensive path relationships dealing with work stressors, strains, enduring outcomes, and modifying variables into a framework that can be used to predict the onset of occupational stress. Each path relationship within the framework has been sufficiently confirmed by empirical research with few theoretical conflicts. The framework of occupational stress has been examined by a number of researchers and gone through a number of iterations. Most recently, the framework was modified by LaRocco, French and House (1980) and, subsequently by Israel and other colleagues at the University of Michigan (Baker, Israel, & Schurman, 1996; Israel, House, Schurman, Heaney, & Mero, 1989; House, Wills, Landerman, McMichael, & Kaplan, 1979). This model empirically describes the relationship between work stressors, strains, and health outcomes. The framework of occupational stress is based on the core principle that stress is a function of the environmental sources of stress and the individual's perception of them, as well as short-term and long-term physiological, psychological, and behavioral responses associated with each experience of stress. In addition, the framework of occupational stress attempts to accommodate a number of modifying factors that influence the relationships among the variables mentioned above (Israel, House, Schurman, Heaney & Mero, 1989).

The framework of occupational stress is based on the assumption that stress arises from the misfit between the person and their working environment and that this relationship is in part determined by an individuals' perception (Edwards, Caplan & Harrison, 1998). This is similar to the concepts described by Karasek (1979) in the demand-control-support model. Thus, work stressors in House's (1981) model are not work stressors objectively estimated but work stressors subjectively perceived by individual workers.

In the framework of occupational stress, work stressors induce strains through perceived stress, which in turn affects short-term responses (strains) and negative enduring outcomes. A number of modifying variables directly and indirectly affect the process of work stressors, perceived stress, strain, and enduring outcomes. House, Landis & Umberson, (1988) focuses on the role of modifying variables in the occupational stress process. In particular, he regards social support at work as an important modifying variable affecting occupational stress, which is consistent with the role of social support in Cohen's (1988) stress-buffering model.

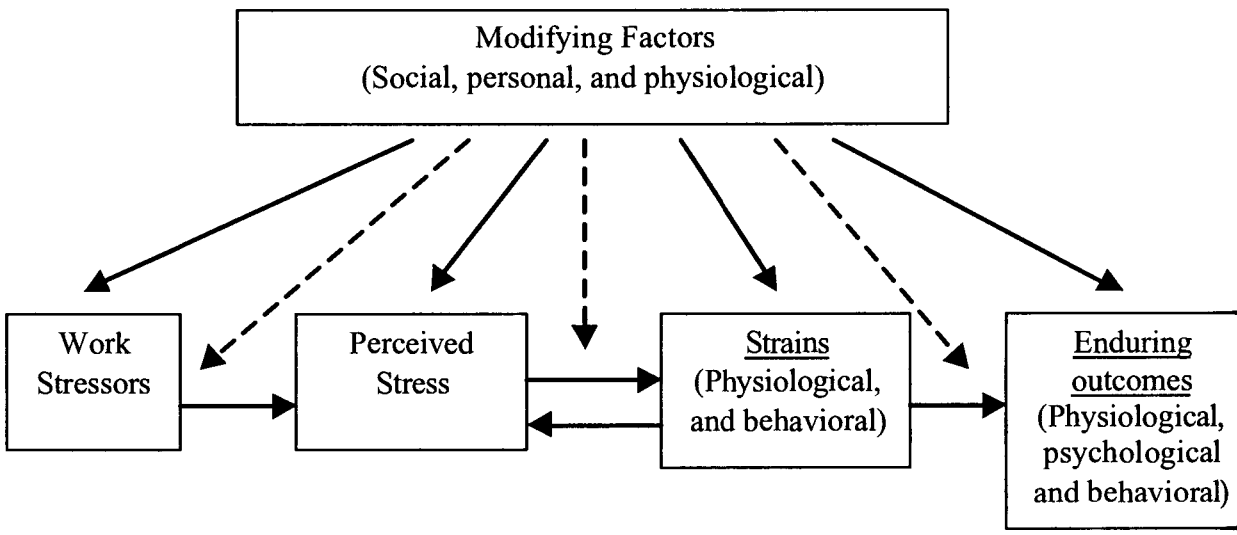

Figure 2.2: The Framework of Occupational Stress (Adapted from House, 1981)

Figure 2.2 illustrates how social support acts to influence the level of work stress experienced by the worker. As represented by the solid lines in *Figure 2.2*, social support can directly reduce perceived work stressors, strains and negative enduring outcomes because social support meets important needs for security, social contact, approval, belonging, and affection (Cohen & Hoberman, 1983). These effects of social support are called main effects. Another effect of social support is illustrated by the dotted lines in *Figure* 2.2. These effects represent the potential of social support to mitigate or buffer the impact of work stressors on strains and the impact of strains on

enduring outcomes. This effect is called an interaction effect. The meaning of interaction is central to most theories on social support, and some authors have gone so far as to suggest that interaction is virtually a minor way in which support affects enduring outcomes (Cohen & Wills, 1985; House, 1981).

Social support generally has greater beneficial effects on the negative effects of strain and enduring outcomes among people with high work stress as opposed to those workers with lower work stress. As shown in the study by Cohen, Schwartz, Bromet and Parkinson, (1991) the beneficial interaction effects of social support on strains become increasingly apparent as work stress increases. In contrast, the main effect of social support on enduring outcomes is not affected by the levels of strain reported by the employee. Indicating that social support may work independently from the interaction effect. Therefore, the need to distinguish main versus interaction effects arises when considering how stress and social support may combine to affect enduring outcomes (Cohen, 1988; House, 1981).

The demand-control-support model successfully points out key work contents affecting the work stress process and describes the interaction between job demands and job control affecting psychological and physical health outcomes. In this stress arousal process, social support has an important moderating role. However, the demand-control-support model is too simplistic of a model to effectively explain the comprehensive relationships that exist between work stressors, strains, and an array of diverse outcomes including psychological, physical, and organizational outcomes. It does however clearly organize the relationship between the three main job components and stress outcomes.

This study expands on the scope of the work stress framework to include social support within the context of organizational culture, whereby social support is one of nine aspects of culture that play a role in the work stress framework. As a result, a comprehensive model is presented that attempts to account for the complex interrelationships that influence an employee's perception of stress. The model also

incorporates a great deal of demographic and personal information on the subjects in order to characterize the personalities of the participant involved in the study.

Stress is a highly personalized phenomenon and can vary widely even in identical situations. These differences occur for a number of reasons. It has been shown that an individual's personality greatly impacts how a person responds to stressful events (Oishi, 1999). This is in part due to conditioning. An individual's conditioning to stressors is related to prior experience, genetic stock, and temperament (McGrath, 1970). These conditions are at least partially responsible for shaping an individual's personality, and can be used to predict how a person handles or copes with a stressful event, such as a corporate merger.

Merger Syndrome

It is no mystery why stress in the workplace poses an ever-increasing health and economic threat. New technologies have revolutionized and intensified the nature of work. Productivity expectations have risen and the pace of change itself has dramatically accelerated, and is likely to continue to do so into the foreseeable future.

The past decade has seen a globalization of the World's workforce and is changing how companies are conducting their business. Many companies are quickly realizing that they require a global presence in the market place in order to remain competitive, achieve economies of scale, and improve returns. To take advantage of the expanding world markets companies require a significant amount of capital, a greater depth of expertise, and adequate staffing resources. Companies are discovering that mergers allow them greater access to the global economy by expanding geographic diversity, improving technological resources, realizing improved efficiencies, and increasing their financial strength.

Mergers generally involve a great deal of reorganization and often place great demands on employees. The stressors, that influence employees during a merger, have

been described by researchers as "merger syndrome", a defensive and "fear the worst" response that result from the uncertainty and stress of a merger (Marks & Mervis, 1985). Other manifestations of merger syndrome include loss of personal and organizational identities, feelings of conflict because of ambivalence and incompatibilities among management, business systems, and organizational cultures and goals (Buono & Bowditch, 1989; Schweiger, Ivancevich & Power, 1987). Research has shown that if these types of stressors are not adequately managed the employee will in all probability experience serious health problems. It is therefore in the best interest of the company and the individual to take preventive actions that minimize the health impacts associated with the negative effects of stress resulting from organizational change. The coping strategies used by employees during this time of transition are varied and dependent on many factors such as the personality of the employee, the social support the employee receives, and the organizational culture the employee is subjected to at the time of the merger.

Coping Strategies

Any discussion of stress requires careful analysis of the concept of coping. Lazarus (1977) defines coping as the mechanism individuals use that are "those direct, active tendencies aimed at eliminating a stressful event". The stressful event assessed in this study is the merger between Exxon and Mobil Oil.

The process of coping may consist of a rather large array of overt and covert behaviours. The process of coping is a very complex response that occurs when an individual attempts to remove stress or what is perceived as a threat from one's environment. The actual reaction one has to an environmental event is as important as the event itself (Garland & Bush, 1982). Therefore, how a person copes with a stressor can play a more important role in the state of a person's health then the stressor itself. This is a particularly important concept to understand for researchers that study stress

responses and health care practitioners involved in the design of stress prevention programs.

Lazarus (1977) divides coping into two main categories, direct action and palliation. Direct action refers to the individual's attempt to change the environment or stressor. Palliation, on the other hand, refers to the individual's attempt to moderate the demands made by the stressor or tolerate the subjective symptoms produced by the stressor. Lazarus (1977) further divides palliation into two subgroups. One subgroup is directed at the symptoms of palliation and includes the use of alcohol, tranquilizers or muscle relaxation techniques. The second subgroup is termed intrapsychic and refers to the use of unconscious defense mechanisms such as denial or distancing. Consequently, the individual may deal with stress through several methods including removing the stressor through manipulating the environment, developing specific responses to help deal with the stressor, or seeking diversion from the stressor.

Studies by Pearlin and Schooler (1978) were among the first to address the interaction of the individual and the environment. They identify coping as a behaviour that is a protective mechanism that functions in three ways. First, by attempting to eliminate or modify the situation that is giving rise to the problem. Second, to perceptually control the meaning of the experience in a manner that neutralizes the problematic character of the situation. The third is to attempt to keep the emotional consequences of the situation manageable. These researchers believe that all coping behaviors can be categorized into these three areas.

The research by Roth and Cohen (1986) on coping, like that of Lazarus, identifies two basic responses to stress - approach and avoidance. These orientations refer to the cognitive and emotional activity that is oriented either to or away from a threat. Approach strategies involve attempts to take appropriate action to either change a situation or to make it more controllable. On the other hand, avoidance strategies attempt to protect the individual from the overwhelming power of the stressor by distancing the individual from the experience. It can be argued that Roth and Cohen

(1986), in making a distinction between two types of avoidance techniques are in fact describing three general responses to stress.

The coping mechanism an individual utilizes when faced with a stressful situation is a function of that individual's personality, age, sex, diet, life style, and prior experiences. The internal coping mechanisms a person uses to combat stress are most apparent in situations that present acute stress. Acute stress is the most common form of stress. It comes from demands and pressures of the recent past and the anticipated demands and pressures of the near future. Acute stress is thrilling and exciting and has been shown to increase performance. Excessive amounts of short-term stress, on the other hand; can lead to psychological distress, tension headaches, upset stomach, and other symptoms (McLean & Hakstian, 1979).

When stressful situations go unresolved, the body is kept in a constant state of activation, which increases the rate of wear and tear to biological systems. Ultimately, fatigue or damage results, and the ability of the body to repair and defend itself can become seriously compromised. Events that cause these types of stress are often referred to as chronic stressors. Chronic stressors can be associated with a negative working environment and persist over a long period of time. This can result in chronic job stress. The severity of the job stress depends on the magnitude of the demands that are being made and the individual's sense of control or decision-making latitude he or she has in dealing with them. Scientific studies based on this model confirm that workers who perceive they are subjected to high demands but have little control are at increased risk for cardiovascular disease. Research has also shown that an individual's responses to long-term stressful events are fairly consistent and vary little based on personality or demographics (Miller & Smith, 1997). The effects of the environment in these situations might play a more important part than personal characteristics (Cherniss, 1980). This body of research provides insight as to why organizational culture plays such an important role in influencing an employee's ability to effectively manage a chronic stressor such as those that might be associated with a merger.

Everyone copes with stress differently and as a result, it becomes difficult to assess the stress level of any given situation. This difficulty has presented many problems to researches over the years especially when the researcher focuses on relational approaches to stress. Relational studies alone have been unsuccessful in quantifying stressful events because stress is so heavily influenced by a person's perception of what constitutes a stressful event. For example, in a study by Schlote (1989), who conducted an assessment of headache patients found that contrary to expectations, headache sufferers reported significantly lower stress levels than the control group, but showed nearly twice as much neck muscle tension as the control. Although the arousal and muscle tension data indicate higher levels of stress, the patients were unable (repressive) or not willing (suppressive) to report those stressors. This problem surfaces in many studies that attempt to directly measure an individuals level of stress. The inaccurate reporting of stress levels is often attributed to the participants inability to accurately report their stress levels. Researchers that focus their attention on assessing aspects of the job instead of directly trying to quantify stress levels have had greater success in predicting stress outcomes. Assessing job characteristics is a technique used by Karasek (1979) in his Job Content Questionnaire.

The Job Content Questionnaire does not however fully account for the various coping mechanisms employed by the individual or the recent history of the study participants. This study uses a combination of relational and stimulus approach that takes into consideration an individual's personality and an interpretation of the person-environment relationship to provide further clarity on the role of perception within the work stress framework.

Recent studies (Calnan, Wainwright, Forsyth, Wall & Almond, 2001; Bakker, Schaufeli, Demerouti, Janssen, Van der Hulst & Brouwer, 2000; Maciejewski, Prigerson & Mazure, 2000) focus on such outcomes as job dissatisfaction, depression, absenteeism, and burn out to assess the impacts of work stressors on employee health. Although all are antecedents of the work stress relationship, as with most qualitative

indicators they are hard to measure and often difficult to draw direct correlations. This study focuses on reported psychosomatic strains and sleeping problems; both of which act as a precursor to many of the outcomes listed above, and are closely linked to an individual's levels of perceived stress.

If an individual is unable to successfully cope with the stressful event they may eventually experience psychosomatic strains capable of impacting the individual's health. For the purpose of this study, the types of coping mechanisms employed are not as important as whether or not the coping mechanism used is capable of successfully managing the stressor. It is hypothesized that those individuals that are unable to effectively manage the stressful event will perceive greater amounts of stress associated with their jobs and will report a greater number of psychosomatic strains.

Psychosomatic strains

Shorter (1992), describes the history of psychosomatic illnesses. His work concentrated on spinal problems but laid the groundwork for future studies on illnesses where there is no apparent demonstrable pathology. The pathology of psychosomatic illnesses has since received much attention and can be directly linked to emotional factors. In fact, psychosomatic illnesses are thought to be any illness in which physical symptoms are thought to be the direct result of psychological or emotional factors. This type of diagnosis has often been associated with stress and is closely linked to how we perceive and respond to stress.

The working environment and how it influences the health of workers has been recognized for a long time. Ramazzini, "the father of occupational medicine" was one of the first to make an attempt to approach to this problem scientifically (Ramazzini, 1713). Another early pioneer was Jastrzebowski (1857) who founded the concept of ergonomics as the science of work. He was the first to recognize that work could have both beneficial and negative impacts on the individual and separated useful work from

harmful work. These concepts formed the basis of later studies that showed the mind and the body is intimately connected, and our overall health depends on both working in unison.

Kagan and Levi (1975) proposed a conceptual model for psychosocially mediated diseases. In their model, social structures (i.e. organizational cultures) and processes (work events) lead to psychosocial stimuli that if not treated properly can eventually manifest themselves in disease and lack of well-being. This process is modified by interacting variables such those assessed in this study.

Research shows that people who suffer from high levels of stress face a higher risk of contracting one of the stress-linked illnesses than the rest of the population. The accumulation of stresses and strains has in many instances been indicated as a contributory or even primary factor in a number of diseases. In addition, a number of studies have demonstrated that relationships exist between stressors and psychosomatic complaints (Zapf, 1996; 1994; 1993; Dunckel, 1991; Frese, 1985). These studies show that psychosomatic strains often manifest in the form of health related problems. Some of these health problems include loss of sleep, neck pain, lower back pain, anxiety, and increased blood pressure.

Sleep difficulties

Acute and chronic stress is known to cause, or exacerbate, a variety of sleep disorders. (Morin, Rodrigue & Ivers, 2003; Akersted, Knutsson, Westerholm, Theorell, Alfredsson & Kecklund, 2002). Related to this, Cherry, (1984) shows that sleep disturbances increase with increasing job strain. Akerstedt, et al. (2002) in looking at physiological responses to stress found that individuals who self report being stressed experienced less SWS "slow wave sleep", which leads to a shallow sleep with early awakening and an increase in the level of reported anxiety, which results in the feeling of not being rested. Sleep is a necessary part of recovery for the human body. It is

divided into five stages, REM "Rapid Eye Movement" and four non-REM stages. REM sleep is of importance for cognitive function and non-REM sleep (especially SWS) for the recovery of physical energy.

More recent studies have shown that how we view day-to-day stresses, including the perceptions of control over these aggravating events rather than the total number of daily stressors, enhances our susceptibility to insomnia. People who exhibit poor sleeping habits; those that take more than 30 minutes to fall asleep and wake up more than 2 times during the night, perceive their lives to be more stressful than good sleepers (Morin, Rodrigue & Ivers, 2003). It has also been shown that poor sleepers become more upset by daily stresses and have stronger reactions to stressful events. This in effect could exacerbate both the individual's poor sleeping habits as well as the level of stress experienced by the person at work.

In related research, Kageyama, Nishikido, Kobayashi, Kurokawa, Kaneko and Kabuto, (1998) compared job stress scores between poor and good sleepers in 223 white-collar male workers. The poor sleepers had significantly higher scores in job difficulty and lower scores in both job achievement and support by colleagues when compared to good sleepers. In another study, Doi, Minowa and Tango, (2003) reported that workers who were dissatisfied with their job had a higher prevalence of insomnia than satisfied workers.

Despite these findings and many others that point to a relationship between job stress and sleep problems, some studies find no relationship between the two. For example, associations between sleep with job control (Akerstedt et al. 2002; Landsbergis, 1988), job quantity or demands (Kageyama et al. 1998), work overload, and social support at the workplace (Tachibana, Izumi, Honda, Horiguchi, Manabe, & Takemoto, 1996) were not significant. The apparent inconsistencies highlighted in the associated results might be for the following reasons. First, most studies examined job stress factors by invalid or unreliable measures. Second, even a well-established job stress measure like the Job Content Questionnaire (JCQ) covers only job control, job

demands, or social support, which are limited aspects of job stress in the workplace. Third, confounding factors such as demographics and lifestyle, physical and psychological health status, as well as shift work that might profoundly have impact on results were not always taken into account, and fourth, the relatively small sample sizes, ranging from 71 to 325, make conclusions less definitive.

Lower back and neck pain

An association between workload and musculoskeletal symptoms has been recognized for a many years. Ramazzini (1713) observed that prolonged sitting, uncomfortable work postures, and repetitive movements were all related to musculoskeletal disorders. More recently, workload has expanded to include psychological loads in addition to physical loads as described by Ramazzini. Interestingly, research is beginning to show that psychological loads may play a more important role in many musculoskeletal symptoms than physical loads.

Power (2001), in a British cohort study found that participants who reported feeling psychological distress at age 23 were over twice as likely to develop lower back pain at age 32-33. Other studies have also found that psychosocial factors at work have an impact on musculoskeletal symptoms and that high job demands are associated with low-back pain (Bongers, Winter, Kompier & Hildebrant, 1993), and neck problems (Bigos, Battie, Spengler, Fisher, Fordyce, Hansson, Nachemson & Wortley, 1991). It is now widely accepted that stress can cause back pain and the specific disorder has been named "Tension Myositis Syndrome" (TMS). Many work stress prevention programs utilize techniques aimed at alleviating TMS, such as therapeutic massage, but these programs fail to effectively deal with the psychosocial factors causing the disorder.

Anxiety

Everybody has felt some form of anxiety in his or her life. Waiting at the doctor's office or being late for an appointment all trigger feelings of anxiety. Anxiety is often related to "Fear the worst" types of responses and the level of anxiety a person experiences as a result of these responses is closely related to how well a person handles stress. In Barlow's (2001) experimentally based book, the crux of anxiety is described as being an anticipation of trouble and feeling unable to control events in one's life. This suggests that one's sense of self control is of vital importance in the onset of anxiety and may give us an indication as to why the feeling of control is an important aspect of work stress.

It has been established that chronic symptoms of anxiety and stress can compromise our body's immune system (Field, 1976). Irrespective of the nature of the causes of stress, real or perceived, our subconscious mind reacts with the same body response by releasing stress hormones equal to the degree of our fear, worry, or sense of threat. It brings about changes in the body's biochemical state with extra epinephrine and other adrenal steroids such as hydrocortisone in the bloodstream (Landsbergis, Cahill & Schnall, 1999). It also induces increased palpitation and blood pressure in the body with mental manifestations such as anger, fear, worry or aggression (Schnall, Landsbergis & Baker, 1994). In short, stress creates anomalies in our body's homeostasis. When the extra chemicals in our bloodstream don't get used up or the stress situation persists, it makes our body prone to mental and physical illnesses.

Like an individual's perception of stress, the likelihood of developing anxiety related disorders is a function of life experiences, psychological traits, and genetic factors. If left unchecked, anxiety may manifest itself in Anxiety Disorder. Anxiety disorders are so heterogeneous that the relative roles of these factors are likely to differ. Some anxiety disorders, like panic disorder, appear to have a stronger genetic basis than others, although actual genes have not been identified. Other anxiety disorders are more

rooted in stressful life events. Those rooted in stressful events are important in this study to determine an individual's overall level of psychosomatic strain.

Increased Blood Pressure

High blood pressure has long been associated with stress and together with its associated complications, is a common cause of death in industrialized nations. It is estimated that up to 50 million Americans have high blood pressure. Blood pressure is known to vary during the course of a day and with emotional and psychological states. (Landsbergis, Schnall, Pickering, Warren & Schwartz, 2003). While stress is known to elevate high blood pressure and increase risks of cardiovascular diseases over the long term, new studies show that workers, even those without a history of hypertension, who feel their jobs are very stressful actually have elevated blood pressure while they're at work.

Researchers in France recently studied blood pressure in 300 workers in a chemical company. These workers were healthy full-time employees without any history of high blood pressure. The workers, who ranged in age from 18 to 55, underwent medical examinations and answered questionnaires designed to rate the overall stress level of their jobs. In addition, of the 300 workers participating in the study 70 were randomly selected to wear monitors that provided a 24-hour assessment of blood pressure.

Twenty percent of the study subjects reported the highest levels of job strain. These workers also showed significantly higher diastolic blood pressure (DBP) levels during the workday than that of their coworkers. This suggests that a workers' individual feelings about their stress levels may in fact lead to elevated blood pressure while at work (Fauvel, Quelin, Ducher, Rakotomalala & Laville, 2001). While this study provides good evidence that acute work stress can have a negative affect on blood

pressure, other studies have drawn correlations between chronic stress and high blood pressure. In a recent study conducted by Landsbergis, Schnall, Pickering, Warren and Schwartz, (2003) men who reported spending over 25 years in a high-stress, low-control job had higher systolic blood pressure values both at work (average 4.8 mmHg higher) and at home (average 7.9 mmHg higher) when compared with men who held less stressful jobs.

The manifestation of psychosomatic health related problems are often associated with stressful events. In the cases presented above the stressful events are functions of the individuals work situation and can vary a great deal among study participants. In the case of this study, all of the participants were subjected to the same stressful event, a merger. Evidence suggests that some or all of the psychosomatic strains described above should be found in the study population. It can be expected that the degree or to what level the employees experienced these health problems is a function of their personality, the success of the coping mechanisms they utilized and the type of organizational culture present in their work environment.

Organizational Culture

The assessment of organizational culture has long been a controversial and problematic topic in occupational psychology literature (Denison, 1996; Reichers & Schneider, 1990; Schein, 1985: Likert, 1967). Part of the difficulty in studying cultures within organizations is that there is no current consensus of opinion on how we define organizational culture. One of the reasons for this, as outlined by Meek (1988), is that dual interpretations of a word often occur when a term is borrowed from another discipline, as "culture" has been from anthropology. Some authors have attempted to operationalize the approach to organizational culture by using a schemata of artifacts, values and assumptions (Schein, 1985). This however has led to problems in

developing any set framework by which an organization's culture can be assessed to determine its effectiveness.

Much effort has gone into defining exactly what Organizational Culture is and even though most researchers disagree somewhat upon definitions for organizational culture they do not dispute its importance to the proper functioning of an organization. Several definitions of organizational culture have been offered. Moran and Volkwein (1992) suggest that culture be conceptualized as reflecting contents of the mind, such as myths, stories, values, norms, and beliefs, which serve as symbols of shared meaning to members of a group. Foster-Fishman and Keys (1997) define organizational culture as a shared system of beliefs guiding members' thinking, perceiving, and feeling that directs behaviour. Culture is most commonly regarded as a set of normative beliefs and shared behavioral expectations held by workers regarding their behavior (Cooke & Szumal, 1993). Schein (1985) defined culture as the body of solutions to external and internal problems that has worked consistently for a group and that is therefore taught to new members as the correct way to perceive, think about, and feel in relation to those problems. This was later refined as:

> "...a pattern of basic assumptions, invented, discovered or developed by a given group as it learns to cope with its problems of external adaptation and internal integration that has worked well enough to be considered valid and thus is taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Schein, 1990, p. 111).

Killmann, Saxton & Serpa, (1985, p. 5) report that "culture can be defined as the shared philosophies, ideologies, values, assumptions, beliefs, expectations, attitudes, and norms that knit a community together." Culture then, is a characteristic of the organization that is perhaps felt more than thought, nonetheless, it defines a very important component of the work environment. This latter definition is important because it recognizes that culture can be equivocally understood to deal with "major beliefs and values" (Goll &

Zeitz, 1991), or alternatively as Core Dimensions of Organizational Culture "norms and patterns of behaviors and norms" (Gundry & Rousseau, 1994).

Organizational climate has a longer research tradition than organizational culture (Schein, 1990). Climate, in the context of culture, is considered to refer to situational characteristics and links to thoughts and feelings of workers (Denison, 1996). Reichers & Schneider (1990) defined climate as "shared perceptions of organizational policies, practices, and procedures, both formal and informal." Moran and Volkwein (1992, p. 20) provide a more comprehensive definition of organizational climate, stating:

> "a relatively enduring characteristic of organization which distinguishes it from other organizations and embodies members' collective perceptions about their organization with respect to such dimensions as autonomy, trust, cohesiveness, support, recognition, innovation, and fairness; is produced by member interaction, serves as a basis for interpreting the situation, reflects the prevalent norms, values, and attitudes of the organization's culture; and acts as a source of influence for shaping behavior. "

Organizational climate is also described indirectly by Halpin and Winer (1963) as "climate is to the organization what personality is to the individual."

Organizational culture and organizational climate are very similar in meaning and the differences between the two have been debated in many articles. This study adopts a position on culture most closely related to what Denison (1996) expresses when he argues that distinctions made between culture and climate are artificial. He suggests that differences are related to interpretation rather than the actual phenomenon studied. Both constructs examine social contexts as the product of interactions among group members over time. Both attempt to explain ways in which an organization adapts by the formation of collective belief systems and meaning. The content in both fields of study is similar, and has included decision-making, communication, organizing, risk taking, peer relations social control, autonomy, and consideration. For example, current

quantitative survey methods, which purport to measure organizational culture, are described as being very similar to previous research on organizational climate. Denison concluded that culture and climate research both address the creation and influence of social contexts in organizations; as such, he proposes that the climate and culture research be integrated. This study adopts an integrated approach, using quantitative methods, to assess the organizational culture/climate of the ExxonMobil Canada West Business Units shortly after the merger of Exxon and Mobil Oil.

Organizational culture literature is characterized by a diversity of research methods. Two main streams of research methods predominate: qualitative methods, characterized by observation and require interpretation; and quantitative methods, characterized by statistical analysis, correlation, and generally employ the use of a survey. These two approaches have been debated in numerous articles (Reichers & Schneider, 1990; Rentsch, 1990; Rousseau, 1990; Schein, 1990). Sanday (1979) and Rousseau (1990) conclude in their review of organizational culture methodology that the choice of method largely depends on the researcher's training, cognitive style, and preference.

Assessing how a company operates is a function of a number of elements and is dependent on what aspect of the company you are studying. Following this, for an analysis of an organization's culture to be meaningful, the dimensions being assessed must be indicative of the research question. In order for organizational culture to be an effective tool in improving a company's performance you must first decide what you are trying to improve and then determine which cultural elements will help you achieve your desired outcomes. For example, to assess how organizational culture impacts shareholder value you may want to assess the company's tolerance of risk. When assessing how an organization's culture influences an individual's perception of stress you want to look closely at the work stress framework.

The work stress framework provided by Karasek, (1979) assesses organizational characteristics and provides evidence for the demand and control model of work place

stressors. This model successfully points out key work contents affecting the work stress process and describes the interaction between job demands and job control affecting psychological and physical health outcomes. The demand-control model is however too simple to explain comprehensive relationships between work stressors, strains, and diverse array of psychological outcomes. The model does however clearly organizes the relationship between decision latitude, job demands, and stress outcomes.

This study expands on the work of Karasek and assesses how an organization's culture acts as a modifier within the job strain model developed by Karasek (1979). Understanding the role an organization's culture plays in the work stress framework is critical in advancing our understanding of the work stress process. The concepts arising from this body of research will make it possible to plan and manage organizational culture purposefully.

The nine characteristics of an organization's culture assessed in this research include:

1. Supervisor Support,
2. Coworker Support,
3. Leadership,
4. Teamwork,
5. Trust,
6. Initiative,
7. Information,
8. Role Ambiguity, and
9. Sense of Belonging.

Supervisor and Coworker Support

Many aspects of a company's organizational culture have the potential of being a powerful source of work stress intervention. One of these is social support. Caplan

(1974) suggests that social support systems consist of "continuing social aggregates that provide individuals with opportunities for feedback about themselves and validations of their expectations of others." Lin, Simeone, Ensel & Kuo, (1979) identify social support with social networks or social environments. They define social support as support accessible to an individual through social ties with other individuals, groups, and the larger community. House (1981) defines social support as an interpersonal transaction involving one or more of the following: (1) emotional concern (liking, love, and empathy), (2) material aid (goods or services), (3) information (about the environment), or (4) appraisal (information relevant to self-evaluation). Summarizing the various definitions of social support, it is the perceived support from one's interpersonal networks in solving one's problems or in improving one's well being. It is hypothesized that support has positive functions on stressors and strain. Stressors and strains vary in the types of adaptation demands they make, and the various characteristics of social support differ with respect to the type of adaptation demands they can moderate. That is, definitions of social support have been based on the assumption that social support is effective in minimizing the negative effects of stressors and strains when there is congruence between adaptation demands of stress at work and characteristics of social support (Wilcox & Vernberg, 1985). Thus, determining characteristics of social support that are associated with stress can be a key point in minimizing stress effects on health and productivity at work. Prior to clarifying the characteristics of social support it is important to first determine where the support is coming from, as this will impact how the individual perceives and responds to the support being offered.

House (1981) indicates that sources of support include the individuals and groups that have the greatest contact with the individual experiencing the stressful event. Supervisor support and coworker support have frequently been measured as sources of social support at work (Israel, House, Schurman, Heaney & Mero, 1989). House also indicates that supervisors can potentially be a more effective source of support than

coworkers in reducing work stress and buffering the impact of work stress on outcomes when the interaction between coworkers is limited in the work environment.

Limited interaction with coworkers is a common feature of many industrial jobs such as assembly-line jobs and service jobs (LaRocco, House & French, 1980). It is also a common feature found in the upstream petroleum industry, particularly in the field offices and remote locations. Coworkers that are in similar working conditions to each other tend to have less power to provide social support to their coworkers than do supervisors. In these situations supervisors are more able to supply appropriate support at the proper time. In the case of this population, teamwork and worker cohesion may play an important role in the work process, especially in the head office where teamwork and close and interaction with fellow employees is the norm.

House (1981) goes on to state that the characteristics of an organization, especially management styles, can directly affect the amount of supervisors' support in an organization. Sustained changes in supervisory or managerial behaviour, including increased emphasis on social support, are likely to occur only in the context of broad organizational participation in support. Hutchison and Garstika (1996) mention that employees view actions taken by agents or supervisors of an organization as representative of actions of the organization itself. They describe this process as personification of the organization. Building on this concept, it can be stated that a worker's satisfaction with work support can be used as a surrogate for the general feelings of how much their organization takes care of them.

From above we see that the structure of the organization and the type of work being conducted has a strong influence on both the level and availability of coworker support. This is supported in a study of factory workers where coworker support had little influence on stress and health because of the highly individuated structure of the working environment in that factory (House & Wills, 1978). Factory workers who work independently of others tend to report lower coworker support than other workers. Thus, the level of coworker support an individual receives is a function of how well the

individual interacts with colleagues, the type of work they perform and by the values and climate of the organization (Armeli, Eisenberger, Fasolo & Lynch, 1998; Eisenberg, Fasolo & Davis-LaMastro, 1997). The work processes utilized within ExxonMobil Canada's head office foster teamwork and collaboration suggesting that coworker support may play an important role in the work stress framework in the head office. On the other hand, coworker support may not influence the work stress framework for employees in the field who work independently of others.

LaRocco, House and French, (1980) analyzed data from 6,360 male workers of 23 occupational groups from a number of different organizations in order to assess the effects of social support on health related outcomes. They postulate that there are five of sources of social support: supervisor, coworkers, wife, family, and friend. In assessing the sources of support against perceived stress (job satisfaction) and health-related outcomes (somatic complaints, depression, and anxiety) their analyses indicates that support from wife, coworkers, and supervisor is able to significantly buffer against the negative outcomes associated with work stressors, such as depressive symptoms. In their study, coworker support has a significant interaction effect on the relationship between role conflict and job satisfaction as well as the relationship between role conflict and depression. Coworker and supervisor support also buffered against the negative effect of heavy workload on psychological stress symptoms (the combination of depression, anxiety, and irritation). The results show work-related sources of support to be more important for depression than family support.

In related work, Stansfeld, Bosma, Hemingway and Marmot, (1998) used the demand-control-support model to assess the influence of social support on quality of life. They conducted three surveys of 9,302 civil servants in 20 London-based branches during a five-year period. The surveys included job demands, decision latitude, and social support at work. Social support measures in their study included emotional support, practical support, negative aspects of close relationships, and networks of social support. An interesting aspect of worker interaction that was highlighted in this study

that had not been looked at previously in this context was the negative aspect of close relationships.

In their longitudinal study, social support at work has a significant interaction effect with perceived work control on quality of life. The three-way interaction of low decision latitude, high job demands, and low social support at work was significantly related to psychological disorders and absenteeism.

Unden (1996) also looked at absenteeism when he examined whether health status and social support affected the absenteeism of 133 civil servants performing office work in Sweden. The survey questionnaire included social support at work and out of work, job demands, decision latitude, perceived health status, and psychosomatic symptoms. Social support was significantly associated with high psychosomatic symptoms, poor perceived health, and high absenteeism. Low sense of belonging, low instrumental support, and low social integration had a negative relationship with high job demands and low decision latitude. There was an interaction effect of job demands and perceived control on depressive symptoms. Results of the multivariate analysis showed a 0.25 correlation between work stressors and depressive symptoms, and 0.32 correlation between depressive symptoms, and a 0.31 correlation with quality of life.

Johnson, Thomas & Riordan, (1994) conducted a case-control study with 211 fishermen as the experimental group and 99 land-based workers as the control group. In their study they compared the subjects work stressors with self-reported stress symptoms. The study assumed that lack of social ties affected work stress, and that fishermen were a group lacking social ties. The self-administered survey consisted of depression, somatic symptoms, and ten work stressors including carrier stress, overload, control, hazards, and conflict. Social support was measured by 15 items of perceived quality of social relationships. The relationships examined were with friends, relatives, wife, supervisors, and coworkers. Johnson, et al., (1994) found that fishermen had greater work stressors, depression, and somatic symptoms than land-based workers. This indicates that social ties were directly related to work stressors and depression.

They also report that under low support conditions, work stressors were more closely related to depression than under high support conditions, which means that there was the interaction effect of social support on the relationship between work stressors and depression.

Even though their study indicates a relationship between social ties and depression it failed to control for a vast number of circumstances that may have influenced the level of the depression experienced by fisherman. By using a control group that was working in such a different environment it made it almost impossible to draw any real conclusions based on the data provided but it does provide enough information to warrant further investigation into this relationship.

Iverson, Olekalns & Erwin, (1998) examines the relationship between work stressors, burnout, and absenteeism. Their investigation involved participants in similar working environments. They used a self-administered survey to collect information from 487 staff of a public hospital in Australia. Based on the demand-control-support model, job demand and job control were considered major work stressors, and social support was measured by supervisor support, coworker support, and peer support. They report that high supervisor support and high coworker support has beneficial effects in reducing absenteeism. In their own model, social support at work and task demands had indirect effects on absenteeism as mediated by psychological strain: depressive symptoms, emotional exhaustion, and depersonalization.

Bromet, Dew, Parkinson and Schulberg, (1988) conducted a cross-sectional study of 325 non-managerial employees of two nuclear power plants and two fossil-fuel plants in Pennsylvania. They found that there is a significant interaction effect of social support on job demands, perceived control, and psycho-behavioral strains (depression and alcohol problems). Coworker support was shown to have a clear interaction effect on the relationship between job demands and depression.

More recently, Mausner-Dorsch and Eaton (2000) studied the psychological work environment and how it relates to depression in a qualitative study involving 905

full-time workers in the Baltimore area. The data was collected through individual interviews. Their study found that Job control was the best predictor of depression and that the interaction of high psychological job demands and low control were related to high depressive symptoms. Calnan, Wainwright, Forsyth, Wall & Almond, (2001) examined mental distress of workers in 81 hospitals in southern England. They used the demand-control-support model to find the relationship between work stressors and depressive symptoms. The interaction of high job demands, low job control, and low social support was significantly related to high depressive symptoms. In the study, under high support conditions, the interaction effect between job demands and job control on mental distress was clearer than in low support situations.

The qualitative and quantitative studies referenced above provide ample evidence of the importance of social support, regardless of source, within the context of the work stress framework. Clearly any study into the antecedents of stress has to incorporate a detailed discussion of social support and the moderating impact it can have on the level of stress perceived by the employee. Many of these studies used absenteeism as a manifestation of job stress to indicate some level of organizational impact. To expand on this some researchers have assessed organizational outcomes by combining employee performance with absenteeism.

Schaubroeck and Fink (1998) examined the effects of job control and social support on organizational outcomes: absenteeism, physical symptoms, and job performance. Based on the demand-control-support model a total of 214 employees completed the survey Job Content Questionnaire in two offices of a large insurance company. Job performance and absenteeism data was also collected. Job performance and data was supplied by supervisor appraisals. The study found that supervisor support had a significant interaction effect with low job control on low job performance. Supervisor support, job control, and skill under utilization had a three-way interaction on job performance. That is, high supervisor support mitigated the effect of low job

control and under-skillfulness on low job performance. High coworker support also had an interaction effect with low job control and heavy workload on low job performance.

Social support at work has comprehensive beneficial effects on the entire work stress process and its outcomes (Israel, House, Schurman, Heaney, & Mero, 1989). Social support at work can alleviate stress both by increasing support itself, by strengthening perceived control, by providing solutions to problems, and by increasing emotional attention from colleagues at work (Dwyer & Ganster, 1991). Social support is therefore an important aspect of organizational culture that should be taken into consideration when assessing the work stress framework.

Closely tied to social support in an organization is how well individuals work together. A central feature of many modern organizations is interdependence, where no one has complete autonomy, and most employees are tied to colleagues by their work, management systems, and hierarchy. Companies organize to create human systems that can implement plans as effectively and efficiently as possible. This requires a number of potentially complex decisions. A structure of jobs and reporting relationships must be chosen from among an infinite number of possibilities. One of those possibilities is the creation of multi-faceted, cross-functional teams that rely heavily on teamwork.

Teamwork

Teamwork relates to all aspects of the work environment; how well information is communicated; the level of co-ordination and collaboration workers have with each other, an understanding of one's function and purpose, and having a common understanding of the groups goals and objectives. Several studies have investigated the effects of team working on employee job satisfaction and employee stress (House, Landis & Umberson, 1988). Evidence suggests that team working can enhance employees' job satisfaction, reduce and employees' stress and increase their level of commitment to the organization.

In terms of the effect of team working on employee well-being, comparative evidence suggests that employees who work in functioning teams report higher scores for well-being and motivation than employees who work alone or who work in nonfunctioning teams (Carter & West, 1999; Greller, Parsons & Mitchell, 1992). Longitudinal studies have also found that the implementation of team-based working can increase job satisfaction, lower stress (Pearson, 1992) and increase organizational commitment (Cordery, Mueller & Smith, 1991) beyond that of individual based working. It has been shown that teams consistently perform better than individuals on almost any task, no matter how dedicated or talented the individual involved. Although team based working is a form of work design that has been around for many decades, its use in organizations as a permanent part of the organizational structure is on the increase. For example, in Europe and the United States, there has been a move away from hierarchical organizational structures to team based structures as part of a trend toward developing more responsive and flexible organizations. Therefore, while the concept of team based working is not new, it does form a new way of working and it is changing the culture of many organizations. In today's global economy, which relies heavily on the exchange of information, teamwork is becoming a necessary aspect of work that companies must embrace to realize the full potential of their human resource.

This study hypothesizes that teamwork will play an important role in the proposed work-stress framework. Employees exposed to workplaces that display high levels of teamwork should be better able to buffer against work place stressors such as psychological job demands and decision latitude than their counterparts who work in environments that are characterized by a lack of teamwork. In addition, those environments characterized by a lack of teamwork may actually add to the negative experience of stress and as a result increase the reported levels of psychosomatic strains. Implicit in this is the key capabilities of certain individuals who by force of character and leadership are able to create and sustain a meaningful work environment for all employees.

Leadership

Many definitions have been proposed for what leadership is and how people can become effective leaders. How a leader's effectiveness is assessed is closely tied to the results they achieve. To achieve results leaders must know what needs to be done and how to get it done. To do this effectively leaders must utilize numerous techniques to motivate people thereby increasing the effectiveness of the resources they have at their disposal. In doing so they also must be aware of the cultural and organizational issues within their companies in order to support and leverage them; knowing these issues provides leaders with the opportunity to effectively transform their companies in a way that will achieve optimal results for their shareholders.

There is no generic pattern of leadership that will be successful at all times in all situations. Concepts of leadership, ideas about leadership, and leadership practices are the subject of much thought, discussion, writing, research, and learning. True leaders are sought after and cultivated by their organizations. Leadership effectiveness shows that those leaders who have a realistic view of what is happening in their organization and respond appropriately to workplace issues are the most effective in getting things done within the organization (Bass, 1985). In other words, Bass iterates that the first responsibility of a leader is to define reality and to create a vision that others can understand and accept. It is also important to understand the mutually supportive relationship between culture and leadership. Leaders play a large role in defining and shaping an organization's culture. At the same time, they are also products of the cultures in which they work (Bass & Avolio, 2000).

Numerous studies have been conducted on the relationship between leadership and organizational culture. It is generally accepted that leaders play a large role in defining and shaping an organization's culture (Cameron & Quinn, 1999; Andrews & Field, 1998). Much of this research has focused on CEOs and other top leaders in small

groups such as executive teams. Waldman and Yammarino (1999, p. 282), describe the shortcomings of such studies by pointing out that

> "part of the problem in attempting to understand the potential effects of leadership at the highest levels is that researchers have generally confined studies of leadership to its effects on the individual, or to the analysis of small groups, rather than to the organization as a whole."

Although the CEO is important in molding the culture of an organization, research has shown that a number of sub-cultures can form in one organization. Sub-cultures within organizations can be generally driven by external influences but more often they are a function of on site leadership. This process is most noticeable in multinational companies that operate in a number of countries (Stoica & Schindehutte, 1999). Such is the case with Exxon Mobil Corporation. The Exxon Mobil Corporation is made up of four different companies that operate in some 200 countries throughout the world.

Not only does the leader of an organization play an important role shaping the culture of an organization studies have also shown that a leader's actions and the type of management style they utilize can have a significant impact on the amount of stress perceived by their employees. A study conducted by Evans, (2003) on the relationship between management style and teacher stress found that the management styles exhibited by heads of departments and the way in which departments are managed are significant factors in the levels of stress teachers report. Teachers in ambiguous and autocratic departments reported the highest levels of stress, closely followed by those in 'political' departments. Staff in subjective and collegial departments reported low levels of stress. The research also indicates that poor relationships between staff in a department or between teachers and their heads of department may cause an increase in the level of stress perceived by teachers. Weak associations between staff in ambiguous,

autocratic and political departments, and poor relationships between departments are reportedly the primary source of stress for teachers.

In a related study it was demonstrated that an effective leadership team plays an important part in reducing employee stress, while an ineffective or 'laissez-faire' leadership style can lead to increased levels of depression in employees. Bell and Carter, (2001) conducted a survey of medical workers and found an increase in employee stress and sickness absence when their leadership displayed a laissez-faire or inactive leadership style. They also found that 'Transformational' leaders are able to inspire and intellectually stimulate employees. "Transactional" leaders are more likely to provide rewards and assistance in return for effort. The research suggests that both types of leaders have employees with greater enthusiasm and better psychological well being than the 'laissez-faire' or inactive leader. All of these studies attempt to classify the leadership of the organization being studied in terms of the characteristics displayed by the management. Though this method of research is able to effectively demonstrate that leadership plays a role in the work stress framework it does not account for employee perception.

As noted in many previous studies, perception plays an important role in how individuals react to stressful events. For this reason, instead of focusing on the specific characteristics of leadership this study assesses the perceptions employees have of their leaders. It gauges the confidence employees have in their leaders, how employees view their leaders regarding the importance they place in financial results as opposed to human factors, and whether or not the employees believe their leaders "walk their talk". It is hypothesized that employees who have little confidence in their leaders and perceive them to be more interested in the finances of the company than in the employees themselves will experience greater work places stresses and therefore report greater psychosomatic strains.

It is also hypothesized that leaders who pay lip service to new initiatives will have a negative impact on the work place and as a result, their management style will be associated with a greater number of reported psychosomatic strains. Implicit in these situations is building and fostering trust. In order for leaders to be truly effective, they must build an organization that fosters trust and encourages open communication.

Trust

Trust is an important part of any relationship. This holds true for the relationships that exist between coworkers, between workers and their supervisor, and management and employees. Trust is the building block for gaining the respect of staff, creating positive work relationships within a team, and enabling staff to handle stress and uncertainty in the work environment. While many companies say they value trust and teamwork, they continue to reward individual compliance with orders from above. These conflicting messages can result in cynicism and distrust of management motives. Culbert and McDonough (1985, p. 18), say that,

> "we've long contended that the trusting relationship is the most effective management tool ever invented. We know of no other management device that saves more time or promotes more organizational effectiveness...In short, trusting relationships create the conditions for organizational success".

McCauley & Kuhnert (1992) note that individuals within organizations tend to enter into commitments or agreements with other co-workers to finish a task. Trust will develop within an organization when the commitments are successfully fulfilled. According to Shea (1984), trust is the "miracle ingredient in organizational life - a lubricant that reduces friction, a bonding agent that glues together disparate parts, a

catalyst that facilitates action. No substitute - neither threat nor promise - will do the job as well." Organizational trust is not a simple concept to understand. It requires many factors be considered when measuring it. According to Mishra (1996) in his Model for Organizational Trust there are four dimensions of organizational trust. They are competence, openness and honesty, concern for employees, and reliability. Recently, research has been done to show that there is yet another factor to consider, that of identification (Shockley-Zalabak, Ellis & Winograd, 2000).

The first dimension is competence. According to Shockley-Zalabak, Ellis & Winograd, (2000, p. 42), "competence is a generalized perception that assumes the effectiveness not only of the leadership, but also of the organization's ability to survive in the marketplace." At an organizational level, competence connects with the extent to which employees see the organization as effective: whether it will survive and be able to compete.

The second dimension is openness and honesty. This is the dimension that is most frequently referred to when speaking in respect to organizational trust (Shockley-Zalabak, Ellis & Winograd, 2000). This dimension involves the amount and accuracy of information shared, as well as the way in which it is communicated.

The third dimension is concern for employees. This dimension pertains to the efforts by others to understand the feelings of caring, empathy, tolerance, and safety when in business activities. It specifically relates to these feelings as they pertain to those felt between employers and employees and amongst employees.

The fourth dimension is reliability. This dimension deals with the question; can you count on your co-worker, team, supplier, or organization to do what they say? Do they act consistently and dependably? This also relates to the quality of data or information that you receive from both management and your colleagues.

The final dimension is identification. This dimension "measures the extent to which we hold in common goals, norms, values, and beliefs associated with our

organization's culture" (Shockley-Zalabak, Ellis & Winograd, 2000, p. 43). This dimension indicates how connected we feel to management and to our co-workers.

Within the context of an organization, trust is "generally earned slowly as a result of consistent behaviour based on personal respect and a genuine concern for the well-being of organizational members" (Taylor, 1989). As a result, leaders within an organization cannot expect trust from their subordinates solely because of their status or position. When an organization is constantly changing it becomes difficult for the employees to maintain trusting relationships. When this happens, it disrupts the normal work processes and can result in higher stress levels for all of the employees. This can also be examined in the context of a merger between two companies. The employees of the merged company will not automatically trust their new management and it can be surmised that employees will experience a greater level of stress during the time it takes for the new management to build back the level of trust that existed prior to the merger.

Employees in organizations marked by low levels of trust usually operate under high levels of stress. They spend a great deal of effort explaining their actions, justifying past decisions, or looking for scapegoats when something does not work out. This prevents employees from focusing on the work they should be doing, and productivity ultimately declines. The amount of time it takes an employee to trust the new management after a merger will vary from person to person and is a function each individual's personality and past experiences.

According to Savage (1982, p. 56) an organization that exhibits low levels of trust is characterized by:

" an atmosphere that is usually quiet; with a low level of energy and commitment,

- there is no conflict, as anyone who 'bucks the system' with complaints is punished or fired,

- any change is viewed with suspicion and alarm,
- management is a top down affair; status is very important; decisions are checked out through the entire chain of command, and
- people feel locked into their jobs."

Low trust in organizations also push people to operate with incomplete information and to treat other people's suggestions with suspicion (Sonnenburg, 1994). As trust declines, barriers to communication are erected and complete information is not shared openly and honestly. In the end, the decision-making process is weakened and decisions of poorer quality are reached. On the other hand, receiving and disseminating accurate information helps to build a strong team spirit and invites employee participation in solving problems.

To determine how trust influences the work stress framework this study assesses the level of trust employees perceive within their work teams and the degree to which employees trust their leadership. For the reasons given above, it is hypothesized that lower levels of organizational trust will be associated with higher levels of psychosomatic strains. Implicit in the concept of trust is the giving and receiving of accurate information that is exchanged in the communication process.

Information

People in organizations typically spend over 75% of their time in an interpersonal situation; thus it is not surprising to find that at the root of a large number of organizational problems is poor communications. The effective transfer of information is an essential component of organizational success whether it is at the interpersonal, intergroup, intragroup, organizational, or external levels. As a result, the flow of information within a workplace can be a strong moderator of work place

stressors or act as a stressor itself and produce negative outcomes. In some cases, it may only have a negative impact when it occurs with another stressor. In other cases, the negative effect of a single stressor can be made worse by the lack of effective communication.

Eisenberg, Fasolo & Davis-LaMastro, (1990, p. 55) state that an individual's willingness to communicate is significantly related to the organizational culture of the company in which they work. The components of culture related to effective communication include the closeness or shared history between employees or relational factors, organizational restraints on communication related to the job, or constraints on an organization's internal and external communication.

In related studies, lack of effective communication has been directly linked to an increase in employee stress levels. Adkins, Quick & Moe, (2000) demonstrate that limiting uncertainty through strategic planning and effective communicating are shown to decrease employee stress levels. Other studies have shown that lack of information or waiting on information to be provided to you by others so that you can complete your task significantly raises the amount of stress experienced by workers. It has also been demonstrated that the communication of information is particularly important during times of uncertainty such as that associated with a merger or reorganization (Schabracq, Cooper, Travers & van Maanen, 2001). These findings suggest that effective communication is an important tool for reducing stress during mergers and may play an even larger role in the work stress framework during times of transition.

To investigate how the flow of information influences the work stress framework this study assesses various types of information flow within the workplace. It assesses the flow of information from management to employees, from employee to employee, and looks at the usefulness and quality of the information that is being communicated. It is hypothesized that the quality and quantity of information communicated to employees will have a direct influence on their associated levels of reported psychosomatic strains. The flow of information within a workplace ultimately depends

on employees having all of the skills and knowledge required to do their jobs within the scope and vision of the company. Implicit in this is the aligning of employees who share a common understanding of a vision and a set of strategies, accept the validity of that direction, and use their knowledge and skills to work toward making it a reality.

Alignment and Role Ambiguity

The evidence that 'role in organization' is a potential psychosocial hazard relates largely to issues of alignment role ambiguity and role conflict (Jackson & Schuler, 1985; Kahn, Wolfe, Quinn, Snoek & Rosenthal, 1964). However, other potentially hazardous aspects of role have been identified including role overload, role insufficiency and responsibility for other people. French and Caplan (1970) conclude that such variables are among the most powerful predictors of psychological health.

Alignment and role ambiguity occurs when a worker has inadequate information about his or her work role. As Warshaw (1989) states, "the individual just doesn't know how he or she fits into the organization and is unsure of any rewards no matter how well he or she may perform." A wide range of events can create role ambiguity and many and of them are related to a specific event or a change in the employees' working environment. In the case of this study, the employees of ExxonMobil Canada adopted the work practices of Exxon and as a result experienced a significant change in their work environment. It can be expected that this change altered the employees' perceptions of alignment and increased the ambiguity associated with their roles in the organization.

A lack of alignment and role ambiguity manifests itself in a general confusion about appropriate objectives, a lack of clarity regarding expectations, and a general uncertainty about the scope and responsibilities of the job. Kahn, Wolfe, Quinn, Snoek and Rosenthal, (1964) found that workers who suffer from alignment/role ambiguity are more likely to experience lower job satisfaction, a greater incidence of job-related

tension, greater feelings of futility and lower levels of self-confidence. French & Caplan (1970) found that alignment and role ambiguity were related to a similar cluster of symptoms. They also showed that alignment and role ambiguity is directly correlated to an increase in blood pressure and higher pulse rates.

Later research by Margolis, Kroes & Quinn, (1974) finds that a number of significant relationships exist between alignment, role ambiguity, symptoms of depression, low job motivation and intention to leave the job. Their study assesses how an individual's role in the organization influences the work stress framework and hypothesizes that those individuals with higher levels of alignment and role ambiguity will self report higher levels of psychosomatic strains.

Non-alignment issues within a workplace environment are evident when employees tend to feel relatively powerless and as a result, potentially report higher levels of stress. Alignment helps to overcome this problem by empowering employees in different ways. For example, when a clear sense of direction is communicated throughout the organization, it allows employees to initiate actions without a high degree of vulnerability. Employees empowered in this way take initiative and make contributions to their organization. When employees feel they are effectively contributing to their organization they are less prone to experience elevated stress levels and report an overall increase in their sense of well being.

Initiative

Personal initiative is a work behaviour that can be defined as self-starting and proactive that overcomes barriers to achieve a goal. It is argued that future workplaces will require people to show more initiative than before, and that current concepts of performance and organizational behaviour are more reactive than desirable (Eisenbach, Watson & Rajnandini, 1999). The components of initiative generally assessed in research dealing with work stress are along the lines of goals, information collection,

plans, and feedback. It has been shown that feedback that encourages initiative can have both positive and negative consequences within the work stress framework. A work environment that encourages initiative is often associated with openness and allows employees become more creative in their thinking. It is characterized by progressive, high-energy work places that embrace change and foster employee participation. Working environments that do not encourage employee initiative are often associated with jobs that are very regimented and based on control with little decision latitude available to the employee. Research has shown, that these types of jobs are often associated with higher levels of coronary heart disease and increased employee stress levels (Karasek, 1979).

It is hypothesized that those individuals who report that their working environment encourages employee initiative will report fewer psychosomatic strains than those employees who feel their organization places little value on employee initiative. Employees whose work is respected and valued, and are given the opportunity to do something meaningful in the workplace, develop a keen sense of belonging and consequently, enable people to accomplish higher level goals.

Sense of Belonging

Self-esteem refers to an individual's overall self-evaluation of his/her competencies (Rosenberg, 1965). In this sense, self-esteem is a personal evaluation reflecting what people think of themselves as individuals. For Korman (1970), self-esteem reflects the degree to which the individual "sees him [her] self as a competent, need-satisfying individual"; thus, the high self-esteem individual has a "sense of personal adequacy" (Korman, 1966, p. 479). Pelham and Swann (1989) note that self-esteem also consists of an affective (liking/disliking) component – high self-esteem people like who and what they are whereas low self-esteem people tend to finds faults in their physical appearance and their past achievements. In these studies, self-esteem is

positively correlated with an individual's sense of belonging. This suggests that the external environment that a person is exposed to plays an important role in their level of self-esteem. Scholars have reasoned that individuals form a self-concept around work, and that their organizational experiences play a powerful role in determining their level of self-esteem. Building upon the notion that self-esteem is in part a function of organizational experiences, Pierce, Gardner, Cummings and Dunham, (1989) introduced the concept of organization self-esteem.

Organization self-esteem (OSE) is defined as the degree to which an individual believes him/herself to be capable, significant, and worthy as an organizational member. Much the same as OSE, sense of belonging is a multi-faceted construct that has been difficult to characterize in previous research. It is recognized that sense of belonging is a function of an individual's organizational experiences, but the processes involved in creating a work environment that fosters a sense of belonging has not been fully explored. Organizational experiences can be summarized as positive or negative. A good metric to use in gauging these experiences is whether or not the individual feels comfortable in their work environment. It can be hypothesized that feeling comfortable in a work environment is a function of the loyalty displayed towards the organization and the ability of the organization to instill a sense of belonging in its employees. In this study, one facet of organizational self-esteem was looked at in detail. This study measured the organization's ability to instill a sense of belonging in its employees. Sense of belonging not only characterizes the overall feeling an employee has about their work place, it reflects the self-perceived value that individual has of themselves as important, competent, and capable within their companies.

Individuals that report a low sense of belonging will generally experience more uncertainty as to the correctness of their thoughts, feelings, and behaviours than those individuals with high a high sense of belonging. In addition, individuals with a low sense of belonging will seek acceptance and approval from others through conforming attitudinal and behavioural acts (Pierce, Gardner, Cummings & Dunham, 1989). As a

result, it is recognized that the ability of an organization to instill a sense of belonging in its employees can act as a moderator of the relationship between the employees working environment (e.g., adverse role conditions), employee attitudes, motivation and behaviour. Recently, Korman (2001) developed the concept of a dual motivational system within organizations. One such system is the *self-enhancement motivational system*, which is activated when employees see an opportunity to achieve high performance goals, believe they can achieve them, but also see the organization as encouraging them to do so. Korman believes providing meaningful work and empowering employees to perform will lead to high self-enhancing employees and an organization that creates strong feelings of self-worth and high scores for sense of belonging.

The second motivational system, which Korman terms *self-protective motivation*, is activated when employees feel they cannot meet performance expectations, and see the work environment as negative that emphasizes punishment in motivating employees. For both motivational systems Korman positions self-esteem as a key precursor. High self-esteem precedes self-enhancement motivation, while low self-esteem precedes self-protection motivation. These self-protection measures can potentially result in a dysfunctional working environment by creating an atmosphere of mistrust and employee dissatisfaction.

From the close association shown between an organization's inability to create a strong sense of belonging and the resulting dysfunctional working environment it is apparent that sense of belonging is closely linked with the level of stress reported by employees. In fact, several studies have revealed a positive relationship between sense of belonging and most facets of job satisfaction including level of perceived stress (Van Dyne & Pierce, 2004; Stark, Thomas & Poppler, 2000; Tang & Gilbert, 1998, 1994). This finding suggests that an organization's ability to create a strong sense of belonging may play an important role in the work stress framework.

This study hypothesizes that individuals who report low scores for their sense of belonging will experience a greater level of stress and subsequently reports higher levels of psychosomatic strains than those individuals who report higher scores for sense of belonging. Satisfying very basic, but often unfulfilled human needs, such as sense of belonging, can create an unusually high energy level in people. With this in mind, it makes good business sense for companies to initiate programs that lead to employee job satisfaction and a genuine feeling of belonging.

The aforementioned nine characteristics of an organization's culture discussed above were used to group the participants according to how they perceive their working environment. The study participants were classified as either having an Engaged Organization Culture or as having a Restrictive Organization Culture. *Table 2.1* developed by the author, summarizes the characteristics of the working environment used to classify the type of organizational culture perceived by the study participants.

Table 2.1: Characteristics of an Engaged Culture and a Restrictive Culture

Characteristic	Engaged Culture	Restrictive Culture
Supervisor Support	Supervisor listens to what the employee is saying, is concerned about the welfare of those reporting to him, is successful in getting people to work together, motivates his staff, provides direction when required and is helpful in getting the job done.	Supervisor does not consider what his staff tells him, cares little about the welfare of those reporting to him, is unable to get people to work together, provides little direction, and is not helpful in getting the job done.
Leadership	Leaders are confident, effectively communicate with their organization, provide clear direction, and care about people and not just financial performance and "walk their talk" relative to new initiatives.	Leaders lack the confidence of their workers, do not effectively communicate or provide clear direction and only seem to care about financial performance and not the wellbeing of the workers. They often pay "lip service" to new initiatives or policies.

Table 2.1: continued

Characteristic	Engaged Culture	Restrictive Culture
Teamwork	Employees work is generally free from conflicting demands of others, they do not often have to wait on others to complete their tasks, colleagues are helpful in getting the job done, and are open to the idea of working together. There is a high level of cooperation both within groups and between groups.	Low employee collaboration, lack of common group goals, colleagues tend to have a negative impact on job performance and there is little cooperation between people within groups or between groups in the company.
Trust	A high level of trust exists between colleagues and management. When someone says they are going to do something it gets done.	Very little trust between colleagues or of management. Tasks are not often completed by individuals assigned to complete them.
Information	Employees are provided with the information they require to complete their jobs. Information flow is well coordinated and information is provided freely to those who need it without regard to an "ownership" issue.	Employees spend much time in search of information to complete their jobs. Information flow is not well coordinated and employees tend to keep information to themselves instead of sharing it with everyone.
Role Ambiguity	Roles and responsibilities are clearly defined and communicated. Employees are involved in planning their career paths and know where they are headed in the company.	Roles and responsibilities are not well defined or communicated and individuals know very little unclear regarding expectations or how to advance within the company.
Initiative	Employees automatically take the initiative to complete tasks and duties.	Employees will only undertake a task if they are directed to do so and are often unwilling to try new things.
Sense of Belonging	The organization fosters a strong sense of loyalty and belonging.	The organization does not foster a strong sense of loyalty or belonging.

Engaged Organizational Cultures vs. Restrictive Organizational Cultures

There has been a significant amount of research published over the last couple of years on how workplaces are transitioning from traditional hierarchical type

organizations to team based organizations. Team based organizations focus on the team approach rather than focusing on the individual, as do many hierarchical organizations. The Team based types of organizational cultures are referred to as Engaged cultures in this study and hierarchical organizations are referred to as Restrictive cultures.

There are many aspects that are similar between engaged cultures and restrictive cultures, however, unlike restrictive cultures, engaged cultures build on those similarities to create a more meaningful work experience. One particular aspect that is quite different between the two is that of job roles, both of management and the worker. In a restrictive culture, the management and workers roles tend to be completely segregated, which is not true of an engaged culture. In a restrictive culture, workers tend to have one specific task or role that they perform every day. Engaged cultures take the approach of emphasizing skills that will allow the worker to better serve the company by solving problems and interacting with the customer, other workers, and other departments.

Another aspect that differs between engaged cultures and restrictive cultures are the goals they deem to be important, both business and human resource based. Goals indicative of restrictive cultures tend to focus on are primarily how well the company is doing (business goals) and that everything is within the organization is secure for the workers (i.e., working conditions, economic security, fair treatment). Engaged cultures, on the other hand, go beyond just the basic fundamental goals associated with restrictive cultures. The goals of engaged cultures tend to be more related to learning as well as adapting to change within the workplace. When it comes down to human goals, engaged cultures expand on those of the restrictive culture by adding career development and personal contribution.

Organizations that displays characteristics associated with that of an engaged culture give their employees responsibility and trust them to achieve the goals necessary for the company to succeed. Not only does the organization succeed, the workers do as well because they are viewed as a valuable asset, which motivates them to want to

succeed. Unfortunately, most restrictive cultures do not have the same thoughts. According to McCauley and Kuhnert (1992, p. 282), "control-oriented approaches of work force management represent a strategy of dividing work into small, fixed jobs for which individuals can be held accountable". On the other hand, individuals in engaged cultures tend to work in groups, thereby making everyone accountable.

Though many companies would like to build an engaged culture, not many actually have the ability to achieve this goal. According to Pfeffer (1998), fewer than 10 percent of all American companies develop and maintain a high performance culture. They report that this is primarily due to management not "walking-the-talk". Walking the talk creates environments that foster communication, build trust, and facilitates teamwork (University of Wisconsin-Stout, 2001). When this is not done, employees place their trust in other people, rather than in the organization's leaders. This study hypothesizes that employees with similar job demands and similar levels of decision latitude working within an engaged culture will report fewer psychosomatic strains than those employees working within a restrictive culture.

Demographic and Personality Characteristics

Literature indicates that several personal characteristics and may have an influence on how an employee perceives stress. These personal factors include demographic variables (such as age or formal education), enduring personality characteristics, and work-related attitudes. According to Johnson and Christenson (2000), these factors should be identified as extraneous variables and should be examined to determine if they vary significantly within the independent variable. Because personal and demographic variables play such a large role in the way individuals perceive their environment they were included within the scope of this study. The following extraneous variables were examined to determine if a significant relationship exists between them and an employee's perception of stress and associated

psychosomatic strains. The theorized influence of personality and demographic variables within the work stress framework is graphically displayed in F*igure 1.1* on page 10.

Age

Age, one of the most studied demographic variables in psychosomatic literature, has consistently been linked to employee stress levels. There is however some ambiguity in the results reported by researchers on how age influences the level of stress reported by employees. Among younger employees the level of stress is often reported to be higher than it is among those over 30 or 40 years old. When age is spoken of in terms psychosocial factors it is often explained in the terms of the individual's matured personality disposition related to the attainment of developmental tasks specific to each developmental phase and its influence on the individual's perception of the situation as stressful or otherwise. Related to this, researchers report that in an industrial setting job satisfaction and job involvement increases with age and as a result occupational stress decreases (Cherrington, Condie & England, 1979).

This finding was confirmed in a recent study by Chandraiah, Agrawal, Marimuthu and Manoharan, (2003), where the level of self reported job stress and job satisfaction of 105 industrial managers working in different large-scale organizations was assessed. They found higher levels of job stress and less job satisfaction among managers 25-35 years age than their middle age counterparts (36-45 years) as well as compared to managers between the ages of 45 and 50. The study also found that age was negatively correlated with occupational stress and positively correlated with job satisfaction.

Age is deemed to be synonymous with work experience; therefore, stress appears to be more of a risk earlier in one's career. The reasons for such an interpretation have not, however, been studied very thoroughly and separate studies have reported very

different findings. In an epidemiological survey of 17000 randomly selected people from the Bristol electoral register Smith, Brice, Collins, Matthews & McNamara, (2000) report that the middle age workers, 35-55 years of age report significantly higher levels of stress than both the older age group and the younger age group. This finding was most evident for males, those who were single, those educated to a degree level, those in full-time employment and those in the most stressful jobs.

These ambiguous findings are further compounded with the problem of survival bias, i.e. those who experience a great deal of stress early in their careers are likely to quit their jobs, leaving behind the survivors who consequently exhibit lower levels of stress. Although the specific impact of age on the level stress experienced by the employee has not been fully explored it is apparent that age exerts some influence within the work stress framework and was assessed for its effects within this study.

Gender

The question often arises whether an individual's gender has an affect on one's perception of stress. Research supports that gender can have an affect on the level of stress experienced by an employee (Peden, Rayens, Hall & Beebe, 2001; Hudd, Dumlao, Erdman-Sager, Murray, Phan, Soukas, & Yokozuka, 2000). Women usually report a higher level of self-imposed stress along with a greater number of physiological reactions to stressors than males (Hudd, et al., 2000). Some researchers have theorized that the reason behind these differences stems from response bias. Misra and McKean (2000) report that men show lower stress levels because they have been socialized to be self-reliant and that a show of emotion is an expression of weakness and not masculine. A male may therefore be more reluctant to self-report stress than his female counter part thereby bringing into question the validity of the reports. Other researchers suggest that the differences seen in the levels of stress can be attributed to how a person's gender influences which strategy they pick to cope with their stress.

Researchers at the University of Washington and Iowa State University explored this question by exposing male and female participants to the same stressful event, a lecture. Results showed that male and female participants had equivalent pulse rates, gave similar ratings of how stressful they thought the lecture would be and had similar thoughts immediately before the lecture. These results indicated that males and females experienced the stressful event (the lecture) in the same way. Even though they had similar reactions to the event, males and females did use different coping strategies to deal with the stress caused by the upcoming lecture. Men reported using more problem-focused coping techniques than women did (Ptacek, Smith & Dodge, 1994). Although the study above shows that men and women are able to employ different coping strategies, it did not show that men and women reported different levels of stress as the result of a specific event. These results are in line with the findings of other researchers who argue that different work factors account for gender-related stress (Piltch, Walsh, Mangione & Jennings, 1995; Spielberger & Reheiser, 1995; Geller & Hobfoll, 1994), and still others report no gender differences when controlling for occupation and position (Greenglass, 1995).

These conflicting findings may be due to focusing on sex, rather than on gender role, in which sex derives it psychological meaning from existing sociocultural structures (Greenglass, 1995; Costos, 1986). Examining the influences of sex and gender role on coping with work stress, Gianakos (1999) found gender role to be more predictive of specific coping styles. Consistent with gender role expectations, femininity or masculinity were both significant predictors of help seeking, direct action, and positive thinking. These findings reinforce the hypothesis that a number of personal attributes influence the coping mechanisms people use when experiencing work-related stress and may play an important role in the work-stress framework.

Home-Life Stressors

In this study, non-work stressors such as those associated with the employee's life away from the office were assessed to control for the effects of non-work stressors on self-reported psychosomatic strains. Major stressful life event items selected from the scales of two large studies were used to measure non-work stressors. Maciejewski, Prigerson and Mazure (2000) conducted Americans' Changing Lives study (ACL) to predict the onset of depression by stressful life events. Ten events were found to be related to depression: death of a child, death of a spouse, death of a partner, death of a close friend or relative, divorce, move to a new residence, loss of job, a serious financial problem, physical attack, and life-threatening illness or injury. Tausig (1982) used the Recent Life Changes Questionnaire (RLCQ) consisting of 118 items to predict depression of 1,091 adult residents in New York. He categorized six significant life events related to high CES-D scores: home, love, family, health, work, and legal problems. He reports that these problems relate to the nature of the interface between the workplace and family and is key to the work-family construct. Although his study did not measure stress, various other studies have shown a high correlation between depression and stress. These studies also reinforce the importance of including the home-work interface in an assessment of the work-stress framework.

The influence of factors external to work can be characterized as having both positive and negative impacts on how the employee handles stressful events at the workplace. Most often, negative conflicts arise when the individual tries unsuccessfully to fulfill responsibilities of roles in both domains. Although time limitations are the most common cause of work-family conflict, other conflicts can arise because of incompatibilities due to strain, energy, or behavioural requirements leading to an increase in the amount of stress experienced by the individual.

Marital Status

Although most family-work researchers have focused on strain, and the deleterious health and well-being consequences of work-family conflict (Barnett, 1996), ample theory and evidence also suggests that the interrelationship between work and family can have a positive effect on health. For example, empirical reports from a variety of samples indicate that marital quality or spouse support is an important buffer for job-related stress, particularly for men (Geller & Hobfell, 1994). It has been concluded that having a supportive partner and the opportunity to talk through difficulties at work may help individuals recover from stressful days and alleviate some of the pressures associated with their jobs. As a result of this, the employee will report lower stress levels and function more effectively both at work and at home. Roberts and Levenson (2002), found that couples appeared to be attuned to the days when their partner's stress levels were the highest and were able to effectively find ways to manage the stress constructively. Some of the stress management techniques utilized included making an effort to infuse positive emotions into marital conversations and finding ways to talk about job stress rather than avoiding it. For the current study, it is hypothesized for this study that employees in well-adjusted marriages will be better able to mitigate against the negative outcomes of work stress and report fewer psychosomatic strains than single employees or those employees involved in dysfunctional marriages.

Personality

It is well documented that an individual's ability to cope with stress and the perceptions individuals hold regarding stressful events is often a function of the individual's personality. For this study, participants are categorized as either having a Type A or a Type B personality. Type A individuals respond in ways characterized as aggressive, achievement oriented, dynamic, hard driving, assertive, fast paced (in eating,

walking, and talking), impatient, competitive, ambitious, irritated, angry, hostile, and under time pressures (Cooper, Kirkcaldy & Brown, 1994; Rosenman & Chesney, 1985). Type B individuals are casual, easygoing, and never in a rush to get things done (Bortner, 1969).

Some studies have shown that Type A personalities develop coronary heart disease (Schaubroeck, Ganster & Kemmerer, 1994) and experience more stressors and strains (Jamal, 1999) than Type B personalities. This however, is not the case for all Type A personalities. As some studies have shown, not all Type A personalities report higher levels of stress than those people with Type B personalities. Researchers now recognize two components of Type A behavior; achievement-striving and impatience-irritability (Helmreich, Spence & Pred, 1988). An individual who is high on achievement-striving is typically very goal directed and action-oriented. An individual high on impatience-irritability is typically very time conscious, hostile, impatient and irritable. In general, achievement-striving is associated with performance, but not health outcomes. That is, those high on achievement-striving tend to perform at high levels, but this aspect of their personality in and of itself is not directly related to their health. Conversely, impatience-irritability is negatively associated with health outcomes, but not with job performance (Bluen, Barling & Burns, 1990). This explains why not all Type A personalities are prone to higher levels of stress.

Consistent with this view, researchers have consistently documented the negative health consequences for people who exhibit anger and hostility (Speilberger, 1991; Wright, 1988; Barefoot, Dahlstrom & Williams, 1983). A person in this category is often characterized as aggressive, hostile, or compulsive and this type of personality has been shown to have an above average incidence of heart attacks, when compared with individual's who have a Type B personality (Oishi, Kamimura, Nigorikawa, Nakamiya, Williams & Horvath, 1999). Thus, those individuals who are high on the impatience-irritability component of Type A appear to be more vulnerable to the negative, health related outcomes of workplace stress.

It is hypothesized in this study that personality will play a large role in the work stress framework interacting with both job stressors and organizational culture. It is expected that the relationship between Type A and job stress may be amplified as a result of the organizational culture the employee is exposed to. In particular, this study predicts that Type A personalities will report greater psychosomatic strain than their Type B counter-parts when exposed to restrictive cultures. Type A personalities who are goal driven and thrive on accomplishment may find the increased bureaucracy associated with a restrictive culture more stressful. Type B personalities on the other hand will tend to act unhurried or be casual and endorse the status quo and will likely report less job stress.

Ethnicity

The impact of ethnicity on the experience of stress in the workplace has been previously studied by Defrank (1988), and Lincoln and Kalleberg, (1990). These studies reported that Japanese workers generally report greater psychological distress and lower job satisfaction compared with workers performing similar tasks in the United States. It was hypothesized that these differences were likely due to differences in lifestyle and the influence of external factors on the experience of stress such as the home life interface. Recent studies, however, have examined this issue more thoroughly and have indicated that the higher reported psychological distress among Japanese workers is likely attributable to response bias instead of actual differences in the perceptions held by the employees. For example the suppression of expression of positive emotions by Japanese (Iwata, Mishima, Shimizu, Mizoue & Spielberger, 1998; Iwata, Roberts & Kawakami, 1995). It is noted that this area needs to be further investigated to determine the role culture plays in employee stress levels (Kawakami, Haratani & Araki, 1998).

Related to this, Baruch and Woodward (1998) found that a key factor in a manager's ability to cope with the stressors associated with a buyout was not necessarily the ethnicity of individual, but instead the nature of the management team culture. This finding suggests that the organizational culture experienced by the employee may play a bigger role in determining how an employee copes with stressors than the ethnic origin of the employee.

In other studies, ethnicity has been correlated with differences in reported levels of blood pressure. African Americans, compared with whites, have a greater prevalence of hypertension, develop high blood pressure at an earlier age, and have more frequent occurrences of hypertension-related diseases (Burt, Whelton, Roccell, Brown, Cutler, Higgins, Haran & Labarthe, 1995). This higher prevalence has been attributed to several factors, including obesity, diet, and lower socioeconomic status (Hall, Ferrario, Moore, Hall, Flack, Cooper, Simmons, Egan, Lackland, Perry & Roccella, 1997; Winkleby, Jatulis, Frank & Fortmann, 1992). Even though ethnicity has not been directly associated with how people handle stress, it has been shown to play a role in how people respond to stressful events. For example, it is clear that the same film can elicit different stress responses depending on the soundtrack provided (Speisman, Lazarus, Mordkoff & Davison, 1964). This research led to findings stating that ethnicity and culture influence the self-reported health appraisal of stress events (Aranda & Knight, 1997).

As seen from previous research a person's race has a definite influence on health related problems often associated with high levels of stress. The cause of these differences is not clearly understood. The differences may in part be due to cultural influences, physiological adaptations, or differences in perception. These differences will be explored further in this study as it looks at how a person's race influences the work stress framework.

Job Classification

Evidence suggests that the work environment may play a role in the elevated risk of adverse health outcomes due to the stress associated with the job. Job Classification, for the purposes of this study is defined in terms of factors that are common to all employees and is dependent on the individual's role within the organization. Roles as defined in the job classification system are a part of a formal structure, which explicitly defines roles and links them in a chain of command. Such a structure helps coordinate employees both by reducing conflict and by resolving conflict in sensible ways. For example, one employee may be taking on extra works over and above what the job description describes as the duties and responsibilities of the job and he or she may ask for a job reclassification. Level of responsibility, education and training, effort required, and chain of command are all defined in the classification system, however, in some instances this system does not minimizes the chances of dispute. On the other hand, the job classification system does provide a mechanism that can resolve disputes. For example, no matter which roles are in conflict in a chain of command there is always someone hierarchically linked to those job roles of the employee who can provide the needed coordination to resolve conflict before it reaches stressful proportions and becomes disruptive for both the company and the employee.

Employees experience stress when recognition of "going beyond" the call of duty is withheld and not valued. If an employee thinks that they are working at more tasks than the job description calls for, a situation arises that can be very stressful, particularly if the employee feels undervalued. When workplaces change, it is not possible to define jobs in unambiguous and non-overlapping ways. Sometimes it is not even possible to know what jobs will look like in the future. As a result, a great deal of stress is generated as employees cope with the threat of the possible loss of meaningful jobs. Companies can work to alleviate such problems by being cognizant of quality of

work life issues, surrounding job classification, by keeping employees well informed, through, involvement, communication, job redesign, and shared decision making.

Cause for Concern in the Workplace

The workplace has seen an increase in excessive stress and distress among employees as a result of the fast pace of development and change. The world is no longer in the industrial era; we are standing on the edge of a new age, one dominated by knowledge and information. Society is changing at a rapid pace, and many workplaces mirror those changes. For example, mergers in the corporate sector is radically changing how business practices are carried out; how employees are working; how managers are managing; how leaders within the organization are leading; and how people are working out how to do things right and how do the right thing. For example, how are people integrated into a new system of management if it is different than the one experienced before the merger? What happens when people oppose change? What are the ground rules for changes to take place? If there are rules, are they aligned with an integrated set of values or are the values of just one party involved in the merger? Are there equity and power issues? Is the quality of work life issues addressed? Is there time and support for dealing with distressed employees?

Many of the above questions give rise to increased stress in the modern workplace. Much of the research points to stress reduction programs as being mainly ineffectual. The aim of many programs should be one of optimizing conditions for employees to become competent workers and thinkers who increase the productivity of the company. Corporations must take a hard look at the applied use of their stress reduction programs and ask if these methods currently being used are the best for the employee and the company.

On the other hand, researchers must explore and investigate new and better ways to add to the body of knowledge concerning stress reduction, which then can be

accessed by the workplace as valid, reliable, usable, and relevant. Therefore, it is imperative, as noted in the above literature review, that researchers identify the factors associated with the increasing risk of excessive stress in the workplace and assist in researching and formulating the proper strategies for addressing them.

Limitations of the Study

A limitation associated with this study is the large number of independent variables that have the potential of influencing the endogenous constructs being studied. As is the case with any research into an individual's perception of their environment the responses given by study participants may be heavily influenced by variables external to those be examined within the study. To decrease the influence of these uncontrolled variables on study participant responses a number of controls were utilized in the analysis of the data.

A review of stress literature identified a number of demographic variables and other independent variables that have been shown to influence the levels of occupational stress experienced by employees. An analysis of variance was then used to assess the effects of each of these variables on the latent constructs being studied. From this, the level of influence of these external factors is determined and those that are shown to have a significant effect on the latent constructs are accounted for within the statistical function of multi-group analysis.

A long standing criticism and widely discussed limitation of subjective self-report measures is that some reports are biased or influenced by common method variance (Williams, Cote & Buckely, 1989; Brief, Burke, George, Robinson & Webster, 1988). Others have noted that self-report measures can be affected by a number of factors other than the construct intended (Spector, 1992). Though the task is difficult when researchers seek to measure attitudes, the survey instrument can yield vital information. The beliefs, opinions, attitudes, and feelings that participants have about cognitive objects are important (Kerlinger, 1986).

Despite these criticisms, the vast majority of job stress researchers continue to use self-reports measures within their studies. Conducting self-reports to gather data is one of the easiest and most cost efficient methods of gathering data. It also enables the researcher to generate large amounts of data, which can be used for statistical analysis,

and to conduct follow up studies over a long period of time. In the case of studying stress, there is a sound theoretical reason for the use of self-reporting. First, self-reports represent a participant's perception, and perception represents an important mediating process in the occupational stress process (Spector & Jex, 1998). In other words, whether or not any potential psychosocial hazard actually impacts on employee well being depends to a large extent on the way in which employees perceive that psychosocial hazard. Second, alternatives to self-reports used in job stress studies have not provided superior results. Objective measures of job stress that use methods other than employee self-report (Frese & Zapf, 1988) and physiological measures of job strains (Fried, Rowland & Ferris, 1984) have been shown to be problematic and can be less accurate than the use of self-reports.

Finally, This study is limited because it is a one case study design with a convenience population and there is a possibility of bias due to the limited population and return size (Campbell & Stanley, 1966). The ability to generalize from the data will be limited (Kerlinger, 1986) particularly as only one specific industry was studied in a specific geographic region.

The findings of the study are also limited to the reliability and validity of the survey and the accuracy of participants' self-perceptions, biases and memory (Kerlinger, 1986). This study is dependent upon the instruments measuring characteristics that can be directly related to personality and the work place. Specifically, the results assume that the *Cultural Assessment Tool* is an adequate measure of organizational culture, and that the *Job Content Questionnaire* is an adequate measure of the stressors experienced by employees in the organization. It is further assumed that the participants understood the directions and content of the various survey forms and responded honestly.

Researchers examine attitudes and use the information as a tool to see order and consistency in what people say, think, and do in an attempt to predict future behavior. "An attitude is not something we can examine and measure in the same way we can examine the cells of a person's skin or measure the rate of her heartbeat" (Hennerson,

Morris & Fitzgibbon, 1987, p. 11). Examining complex attitudes, as this study does, is a complex process. Henerson, et al., (1987) urges researchers to not be dissuaded because the task is difficult, but cautions them to remember they are relying on inference, since it is impossible to measure attitudes directly. Though the task is difficult when researchers seek to measure attitudes, the survey instrument can yield vital information. The beliefs, opinions, attitudes, and feelings that participants have about cognitive objects are important (Kerlinger, 1986).

Chapter II Summary

In this chapter a review of the relevant research and literature concerning occupational stress followed by a discussion of coping strategies and associated psychosomatic strains. The characteristics of an Organization's culture were then presented along with a comparison of characteristics of an Engaged culture to those representative of a Restrictive Culture. Following this, the interaction effects of demographics on the work stress framework was presented followed by causes for concern in the workplace and the limitations of the study.

CHAPTER III

METHODOLOGY

Introduction

In this chapter, the purpose of the study is presented followed by an explanation of the methods used to conduct the research. A discussion of the methodology follows including a description of the study's participants, study design, research questions and hypotheses. The data collection process is also described along with associated measures, data management and the use of statistical analyses.

Purpose of the Study

The purpose of this study is to research the relationship that apparently exists between organizational culture and the work-stress framework. It is hypothesized that organizational culture will work to moderate the levels of psychosomatic strains reported by employees shortly after the merger of Exxon and Mobil Oil. To this end, a survey research study design was utilized to enable the researcher to make a detailed examination of the work-stress framework. The intent of the research is to provide valuable and insightful information with regard to how employees cope with stress and provides a framework, which health care professionals can use to build programs designed to reduce stress levels within their organizations. Also being examined is the influence of personality, age, race, gender, education, job rank, and home-life interface on an individual's levels of stress and self reported psychosomatic strains.

Research Design

The design of this study represents a snap shot in time of the perceptions held by the employees of ExxonMobil Canada after the merger of Exxon and Mobil Oil. The study uses a cross-sectional design with the administration of a five-part survey. The survey was distributed electronically to employees of ExxonMobil's Western Canada Operations. The use of surveys has been used in numerous studies on occupational stress. The results of these surveys are often ambiguous and characterized by perceptional stigmas surrounding job stress. This phenomenon can not usually be detected because the measurement of occupational stress factors exclusively relies on self-report.

Self-reports are likely to be confounded with personality and coping strategies. For example, some individuals might deny stress and therefore under-report occupational stressors in questionnaires. Likewise, non-complaining tendency (Theorell, Ahlberg-Hulten, Sigala , Perski, Soderhold, Kallner & Eneroth, 1990), and repressive coping (Melamed, 1996) has been associated with psychosomatic strains and also influence reporting of occupational stress. This confounding might result in zero associations or negative associations between occupational stressors and psychosomatic strains. To disentangle the effects of the person from the effects of the environment, multi-method strategies have been suggested in cardiovascular research to contrast self-report indicators with more objective stressor data (Kristensen, 1996).

There are several approaches to ''objectify'' the assessment of job stressors (Greiner, 2000). One strategy is the assessment of stressors using theory-guided observational interview at the worksite by trained analysts. The underlying idea of this approach is that trained analysts are better able to abstract from feelings and appraisals related to the workplace than the job incumbent who is engaged in the work situation on a daily basis. Observational interviews are conducted at the worksite during regular

work with a particular worker. Using a structured protocol the analyst observes and records environmental and organizational job characteristics, work behaviours, and frequency and duration of job problems.

Since some information cannot be gathered by observation alone (e.g., the logistics of complicated work procedures), the analyst asks questions directly related to the observations. The questions address objective work characteristics and procedures rather than subjective feelings of the worker. The analyst combines all pieces of information gathered by observation and interview by relating them to an objective concept of stress, and then summarizes them in structured answer forms (Greiner, 2000).

This type of research methodology has met with some success but is very labour intensive, and as a result is possible with only smaller sample sizes. It can also be disruptive to the work force; thereby adding additional stressors and it may also introduce the observer's preconceptions regarding the study content into the data collected. As a result, the work observation may not be representative of that actual work situation.

A second approach is to use self-report stressor data that are averaged across individuals in identical jobs or work tasks or averaged for identical job titles; this strategy also cancels out individual differences in perception. A third approach is to ask questions that require as little emotional processing of the participant as possible and separate those questions clearly from those that involve feelings and personal perceptions (e.g., asking how often a particular events happens as opposed to how the individual feels about the event). Many models of stress, at least implicitly, that it is the perception of stress that initiates a physiological process that adversely affects health. It is therefore possible that stressors are able to illicit psychosomatic responses without the individual being aware of any stress?

By utilizing a structured questionnaire that requires little emotional processing to assess an employee's work environment for characteristics shown to be associated with higher levels of job stress as opposed to measuring stress itself it may be possible to

decrease the phenomenon described above with regard to stress bias. This study utilizes such a method and controls for personality and demographic profiles to help clarify the role of the individual versus the environment in the etiology of work stress. A combination of multi-item scales and single item scales were chosen as the method of choice because it allows for the multivariate comparison of several groups in-situ without the manipulation of experimental conditions or the introduction of additional bias through observational error.

It is generally accepted that multi-item scales provide better sampling of the content domain than single items (Bagozzi, 1980). As a result, it is assumed that multi-item measures provide better content and predictive validity than single-item measures. Multi-item measures also enable calculation of internal reliability coefficients, providing an estimate of measurement error that cannot be gained from a single item. There are, however, scattered published studies that have found that single-item measures equal, and in some cases exceed, the psychometric virtues of multi-item measures. For example, a single-item measure of job satisfaction, in the form of the Faces Scale (Kunin, 1955) has been shown to equal the psychometric properties of longer, more time-consuming measures. Robins, Hendin & Trzesniewski, (2001) suggests that single-item measures may be particularly useful when multi-item measures do not effectively remove measurement error and when the construct being measured is not multi-faceted.

This study employed both single-item measures and multi-item measures to quantify the influence of organizational culture on the work stress framework. These measures were sent out in the form of a five-part survey to all employees of ExxoMobil's Western Canada Operations shortly after the merger of Exxon and Mobil oil.

Population

The merger of Exxon and Mobil Oil created an opportunity to assess one of the largest mergers of the twentieth century. The merger created an organization with 120 000 employees that operates in some 200 countries worldwide. The company itself is made up of four main divisions, the Upstream Division, the Downstream Division, the Chemical Division, and the Global Services Division. Each of these is split up into different companies. The focus of this research will be on employees within the Upstream Division. The Upstream Division is split up into six companies, the Exploration Company, the Development Company, the Production Company, the Gas & Power Marketing Company, the Upstream Research Company, and the Upstream Technical Computing Company.

The corporate entities that would become Exxon and Mobil Oil began the 20th century as components of John D. Rockefeller's Standard Oil Trust. Two separate refining and marketing organizations existed within the Standard Oil Trust: the Standard Oil Company of New Jersey; and the Standard Oil Company of New York. "Jersey Standard" and "SOCONY", as they were respectively known, were the chief predecessor companies of Exxon and Mobil. In 1911 the U.S. Supreme Court ordered the dissolution of the Standard Oil Trust, which resulted in the spin-off of 34 companies, including Jersey Standard and SOCONY. In 1955 SOCONY became SOCONY Mobil Oil, the predecessor of Mobil Oil Corporation. Jersey Standard changed its name to Exxon in 1972. For the remainder of the 20th century Exxon and Mobil continued to operate in a relatively low-price, low-margin environment. As markets in the United States and Europe matured, regulations became more stringent and competitiveness tightened worldwide. Each company continued to advance new technologies, introduce marketing innovations, and extend its reach into emerging high-growth markets. The two companies became more efficient, reduced costs, and increased shareholder value.

In 1999 Exxon and Mobil signed a definitive agreement to merge and form a new company called ExxonMobil Corporation. One year later, in December of 2000 the companies received clearance to merge from United States Securities Commission and the new entity of Exxon Mobil Corporation was born. The management team was tasked with creating a new organization from two companies that had vastly different organizational cultures.

Exxon employed characteristics associated with that of an Authoritarian type culture and Mobil Oil utilized more of a Participatory approach to management. The year following the merger was a period of transition for the new company as Mobil Oil adopted the practices and managerial styles of Exxon. The same was true for ExxonMobil's Operations in Western Canada, previously known as Mobil Oil Canada.

ExxonMobil Canada the study population used in this study consists of three different Upstream Companies. The Production Company, the Exploration Company, and Global Services. All came under the umbrella of the parent company ExxonMobil Canada. Each company implemented Exxon management systems at different rates creating an excellent opportunity to study different cultures within one organization. AT the time of the study, each company had its own distinct organizational culture that was to varying degrees a blend between the authoritarian style of Exxon and the participatory style of Mobil.

ExxonMobil Canada, an Upstream Oil and Gas Company was chosen as the study population for this research. This group represents an excellent study population for conducting research into occupational stress and culture for the following reasons:

1. Employee activity level is fairly consistent for each of the business units. Each business unit is conducts similar work and the manpower for each group is set according formulas based on is based on equipment counts and associated production levels. This method of staffing contributes to the

normalization of employee activity level and should provide some level of consistency for psychological job demands.

2. The structure of the organization prior to the merger and immediately following the merger created a number sub-cultures within the one company.
3. All employees within this population were recently exposed to a major stressor, a merger.
4. Every employee has access to their own internal electronic mail providing an efficient mechanism for distributing the questionnaires.

Within large companies it is reasonable to assume that over time each organizational group can potentially develop its own subcultures. This is a natural occurrence as an organization matures. Subcultures were also apparent in Mobil Oil Canada at the time of the merger. Subcultures form for a number of reasons. In the case of Mobil Oil Canada, each Business Unit functioned autonomously prior to the merger, each with its own manager and associated business practices. Managers of organizations play an important role in establishing and shaping the culture of their organization (Schein, 1985; Deal & Kennedy, 1982). When each functional group has its own Manager, it stands to reason that a subculture may develop. Organizations usually select their management from the ranks of individuals who appear to best represent the value system of the majority (Chatterjee, 2000), thereby preventing the subcultures from becoming drastically different.

Each subculture that develops has the ability to impart its own influence on the culture of the organization thereby changing the organization as a whole. In the case of Mobil Oil Canada, it was apparent that a number of subcultures were in existence at the time of the merger. During the merger, the subcultures had the opportunity to change even further as it has been shown that during periods of transition leaders create change by providing a vision that is attractive to followers (Eisenbach, et al., 1999), thereby influencing the performance of the company throughout the transition stage.

ExxonMobil Canada employed 412 employees and some 1200 contractors at the time of the study in late 2001. ExxonMobil Canada's head office is located in Calgary, Alberta and it has operations in British Columbia, Alberta, and Saskatchewan. Prior to the merger Mobil Oil was set up into eleven different Business Units. Each Business Unit operated independently of the others. This gave rise to distinct subcultures that were quite apparent to the author in visits to the different sites. Each Business Unit conducted similar operations and for all intensive purposed engaged in the same activity; the exploration and production of oil and gas.

The population for this study is defined as full time employees of ExxonMobil Canada who had worked for the company at least one year prior to the distribution of the survey. No specific sampling or randomization technique was used. It was physically possible to include the entire population including management. This resulted in a population size of 382 people.

Organizational Culture

The most widely cited cross-cultural work is that of Hofstede (1983; 1980; 1976) who analyzed data from employees in 67 countries. His work is the cornerstone in studying cross-cultural differences and has been replicated extensively. Hofstede's survey items analyze traditional job attitudes, which result in factors that are defined in terms of cultural values (Ronen, 1997). Hagberg (1999) built on the work of Hofstede in the development of his Cultural Assessment Tool. This study will be using an abbreviated version of the Cultural Assessment Tool (Hagberg, 1999), an objective and quantitative survey that measures an employee's perceptions of their organization's culture. These include dimensions such as social support, leadership, organizational trust, teamwork, flow of information, innovation, role ambiguity, and sense of belonging. Generally, the Cultural Assessment Tool is first administered to a stratified random sampling of a company's employees. Then, a two-hour interview is conducted

with a random sampling of these individuals. From this, the researcher is able to gauge employees' perceptions of 42 aspects of the organization's culture. This study used an abbreviated version of this questionnaire and only focused on those aspects of an organizations culture closely linked with the job stress framework.

Organizational Stressors

The scales of stressors utilized in the study consisted of work stressors and non-work stressors. Work stressors were measured by perceived job demands and job control. Four items representing the home-work interface measured non-work stressors. The effects of non-work stressors were controlled in a statistical analysis to discriminate accurate effects of work stressors from non-work stressors on psychosomatic strains.

Work stressors were measured by job control and job demands. Karasek (1979) operationalized job demands in the sense of psychological stressors at work such as requirements for working fast and hard, heavy workload, not having enough time, and having conflicting demands. He modified the conception of job demands to include job complexity and interpersonal relations at work (Karasek, Brisson, Kawakami, Houtman, Bongers & Amick, 1998). Dwyer and Ganster (1991) pointed that the workload, job complexity, job conflict, and job ambiguity involved in carrying out a job as the main components conceptualizing job demands. The main components comprising job demands of this study were workload, time-pressure, job complexity, job conflict, and interpersonal relationships.

The concept of job control was discussed in organizational research in terms of participation in decision-making and job design (Spector, 1992). Karasek (1979) defined job control, as the working individual's potential control over his tasks and his conduct while at work. He indicated that job control is conceptualized by two components: a worker's authority to make decisions on his job and the variety of skills that the worker uses on the job. Ganster (1989) defined control as the ability to exert

influence over one's environment so that the environment became more rewarding or less threatening. He mentions that participation in decision-making and job autonomy is the main components conceptualizing job control. The main components of job control of this study were decision-making latitude, task variety, work schedule, and job autonomy. Karasek (1979) predicted that mental strain results form the interaction of psychosocial job conditions such as the job demands experienced by the employee the their job decision latitude over these job demands.

Psychosocial job conditions were measured with the job content questionnaire. The job demands sub-scale is the sum of five items inquiring about excessive work, conflicting demands, insufficient time to work, fast pace, and working hard. The job control scale is the sum of two sub-scales: skill discretion as measured by six items (learning new things on the job, ability to develop new skills, job requiring skill, task variety, work not repetitious, job requiring creativity) and decision authority as measured by three items (freedom to make decisions, choice about how to perform work, and having a lot of say in the job). The work related social support scale is the sum of two sub-scales: support from coworkers (four items) and supervisors (four). For each item the participants are able to choose from one of four responses ranging from strongly disagree to strongly agree.

Demographics

Age, gender, race, education, employee classification, length of time with company, work location, and marital status make up the list of demographic information collected for each of the participants. This data enabled the author to assess the effects of the demographic characteristics on psychosomatic strains and to control for them if they were shown to have a significant impact on the work-stress framework. It has been well documented that there are significant differences in the manifestation of stress related systems by age, gender, and marital status. Hurrell (1985) reports that female

workers had significantly higher stress symptoms than male workers among 2,803 postal workers in the US. Hellerstedt and Jeffery (1997) report that stress at work was significantly different by gender in a health behavior intervention study they conducted on 3,843 workers in 32 profit-organizations. In a literature review study, Pohorecky (1991) indicated that age and gender were significant moderators affecting the relationship between stress symptoms and behavioral strain (drug abuse).

Cohen, Schwartz, Bromet & Parkinson, (1991) reports that age is a significant and confounding factor on the effect of stressors on health status. Vermeulen and Mustard (2000) examine the gender difference between perceived social support, work stress, and psychological strain and report that women have more perceived social support, higher work stress, and greater psychological strain than their male counterparts. The findings of Luoto, Roikolainen & Uutela, (1998) reiterate that stress symptoms are significantly different by gender (women) and marital status (single) in an analysis of a survey by the conducted by the National Public Health Institute in Finland. Burvill (1995) also note that age, gender, and marital status are significant demographics affecting depression prevalence in a literature review study.

An underlying theme of all of the studies presented above is that stress is a very personal phenomenon that is heavily influenced by a multitude of internal and external factors. How all of these factors interact has been the focus of numerous studies, but the development of a framework that incorporates them all in the context work-stress has not yet been a focus of researchers.

Personality

This study uses Jerabek's (1996) Type A Personality Inventory to identify employees that display traits associated with individuals that possess a Type A personality and those that display traits more characteristic of a Type B personality. Jerabek's (1996) Personality Inventory has been used extensively in research and its

internal reliability has been validated in a study of 49435 men and women aged 10 to 70 (Sylvain & Jerabeck, 2002). Sylvain's study shows the Personality Inventory to have a Cronbach's Coefficient Alpha of 0.9218.

Popular opinion seems to regard the Type A personality (Friedman & Rosenman, 1974) and an internal ability to control your work situation (Rotter, 1966) as ideal characteristics for those employed in managerial positions. However, the impact of such personality characteristics upon levels of stress, and how it influences the work stress framework is less clearly established. This study looks at the relationship between personality, the amount of perceived stress experienced by employees, and the level of reported psychosomatic strains.

Data Collection Procedure

Data collection was conducted by means of a self-administered survey that was distributed to all employees through electronic mail. On November 13, 2001, an electronic message was sent to all of ExxonMobil's employees in Western Canada. The employees were explained the confidentiality of the questionnaire and instructed to either send the completed form back to the author via electronic mail, via fax, or via the internal office mail delivery system (See *Figure 3.1* Electronic Distribution of Survey).

Brent J Pasula
11/13/2001 09:34 PM

Deferred mail routing

To: MOCAN-WC-Employees-All
cc:
bcc:
Subject: Assistance Required

I am conducting a study as part of my PhD. program and request your assistance in completing the attached survey.

The survey will take about 10 minutes of your time to complete.

Please note that the survey you are being asked to fill out is voluntary and anonymous. Please ensure that you do not write your name, or any other comments that will make you identifiable on the attached. When you email the document back to me I will not record any names thereby ensuring that you remain anonymous. I am the only one that will have access to the raw data used in this study.

occupational survey.xls

I acknowledge that all of you are extremely busy people and sincerely appreciate you taking the time out of your schedules to complete the attached survey.

Thank you,

Figure 3.1: Copy of the note that was sent to all employees of ExxonMobil Canada West on November 13, 2001.

The following measures were utilized to ensure the anonymity of the study participants. First, the study participants were instructed not to sign any of the documentation being returned to the author. Questionnaires that were returned to the author by fax or by internal mail were anonymous thereby ensuring the confidentiality of the participant. In cases where a participant had identified himself or herself on the questionnaire, their identity was concealed with an indelible black marker. Additional measures had to be used for questionnaires that were returned to the author electronically.

Electronic messages can be tracked back to the sender of the document thereby revealing the identity of the participant. In these cases, only the author had access to the electronic mail box where the surveys were returned, and as soon as the author received an electronic survey it was given a reference number, stored digitally on a secure computer, and then the electronic mail was erased. This enabled the author to maintain the confidentiality of the participant.

The Survey Instrument:

The Survey Instrument consists of five sections. Each Section is made up of a number of questions used to assess a specific aspect of the employee's work situation. The methodology used to assess the participants' responses is described in detail in *Table 4.1.*

Section I

Study participants were given a choice to either print the survey off and fill it in with a pencil or complete the survey online with the use of check boxes. The note that accompanied the survey instrument explained the purpose of the survey, confidentiality assurances, the voluntary nature of the survey, and invited participation in the survey. The survey itself was sent out in the form of an excel spreadsheet with five worksheets. Each worksheet represented a different survey instrument.

The first worksheet, "Section I" introduced the study topic, gave directions on how to complete the survey, and collected demographic information from the participants (see *Figure 3.2*).

OCCUPATIONAL SURVEY

DO NOT SIGN YOUR NAME

I acknowledge and recognize that all of you are extremely busy people and sincerely appreciate you taking time out of your schedules to complete the following questionnaire.

INSTRUCTIONS: Answer each question by checking off the answer that best fits your job situation. Please use your mouse to navigate within the worksheet and fill in all five sections (tabs at bottom) before sending survey.

Please return the completed survey online by saving it as an Excel file and e-mailing it to: **Brent_j_pasula@exxonmobil.com**, or

Fax to: Brent Pasula @ 1 403 232 5298 Or Mail To: Brent Pasula
ExxonMobil Canada
237 4th AVe. S.W.
PO Box 800, Calgary, AB
T2P 2J7

SECTION I

Company name:

Age Sex

Race: ☐ First Nation ☐ Oriental ☐ African American ☐ Caucasian ☐ Other

Highest level of education completed: ☐ Elementary ☐ Junior High

☐ High School ☐ Post Secondary ☐ University Degree ☐ Graduate Degree

Marital Status:

What is your job classification?

What functional group does your work fall into?

How long have you been in this job title?

How many years have you been working with your current employer?

Figure 3.2: Section I of the questionnaire: Instructions on completing the survey and demographic information.

The drop down boxes seen in Section I of the survey instrument gave the participants the following choices:

- Marital Status:

  Married, Common Law, Single, Divorced/Separated, Widowed
- What is your job classification?

  Management, Employee
- What functional group does your work fall into?

  Supervisor, Technical, Operations, Maintenance, Support

Section II

Section II of the questionnaire instrument collects information on the work environment and the potential stressors experienced by employees. This study used a tailored version the Job Content Questionnaire to measure work related stress. The original Job Content Questionnaire was developed to measure the risk of heart disease in a large-scale study, and contained 27 questions based largely on items and scales from the US Quality of Employment Surveys.

The Job Content Questionnaire has the most extensive accumulated evidence on stress' relationship to physical health. A recent international comparison of distributions and psychometric properties of the Job Content Questionnaire among U.S., Canada, the Netherlands, and Japan has demonstrated that the Job Content Questionnaire can be used for cross-national studies on job stress (Karasek, et al., 1998). This survey has been translated into over a dozen languages, including Japanese (Kawakami & Fujigaki, 1996) and French (Larocque, 1998). It is nationally standardized by detailed occupation in several countries, has an active users' group that supports it's usage, and has an international board of researchers that decides on policy and development issues. Its successful use around the world as an indicator of cardiovascular disease makes it the

survey of choice to use in cultural studies relating to stress. Although this survey has been used extensively in international studies, the presentation of the international data is not accompanied by any hypothesis relating to cultural differences amongst the test groups. This study will depart from previous research by assessing the relationship between culture and stress from the analysis of the data derived from both the Job Content Questionnaire and the Cultural Assessment tool.

Psychologically, the Job Content Questionnaire reflects a stimulus approach, as opposed to a relational approach, which emphasized personal cognitive interpretation of the person-environment relationship. The Job Content Questionnaire assumes that behaviour is, to a significant extent, generated by social environments and their constraints outside the individual (Karasek, et al., 1998) thus making it an ideal survey to study the effect organizational culture has on the stress experienced by an employee. In addition to the above, the Job Content Questionnaire was chosen for the following reasons:

1. Its use has accumulated extensive evidence on the relationship between occupational stress and physical health.
2. It appears to be the most widely used and accepted job-stress assessment instrument.
3. It is widely used in cross-cultural studies of occupational stress.
4. It is easy to customize the instrument to study specific occupational functions.
5. It is based on the Demand and Control Model of stress. During the transition period following a merger employees are faced with increased demands and in the case of the sample group in this study, have experienced a significant decrease in their level of control.
6. The questionnaire uses simple language and was designed to minimize response bias.

The Job Content Questionnaire can be characterized as focusing on the psychological and social structure of the work situation. The concept of job control was discussed in organizational research in terms of participation in decision-making and job design (Spector, 1986). Karasek (1979) defined job control, as the working individual's potential control over his tasks and his conduct during the working days. He suggests that job control is conceptualized by two components: a worker's authority to make decisions on his job and the variety of skills that the worker used on the job.

As noted earlier, considerable empirical support for the Demand and Control (DC) model is shown in large-scale multi-occupational studies that tend to provide support for the interaction effects between demand and control predicting strain. In addition to the empirical evidence, the reliability and validity of the study has been assessed as well. In order to investigate the reliability and validity of selected scales from the Japanese version of Job Content Questionnaire Kawakami and Fujigaki, (1996) conducted a survey of 1,126 white-collar employees of a computer company in Japan using a questionnaire including 31 items from the JCQ. Ten JCQ scales on psychological and physical demands were examined in 603 male and 84 female participants.

Cronbach's alpha reliability coefficients for nine JCQ scales, which consisted of two or more items, ranged from 0.66 to 0.90 for males and from 0.64 to 0.88 for females. Item factor analysis for each scale indicated that the first factor explained 50 or more percent of item variation of decision authority, supervisor support, coworker support and framingham physical exertion in males and females and of psychological demands in females. The skill discretion, decision authority and decision latitude significantly and positively correlated with age, years of employment, and years of experience in males.

In addition, it was shown that decision authority positively correlates with age and years of experience. Psychological demands, and physical exertion significantly and positively correlated with overtime in males and females. Skill discretion, decision

authority and decision latitude, psychological demands were lowest in computer engineers/technicians. These studies suggested that the JCQ scales are reliable and valid instruments for assessing job stressors.

For the purposed of this study, a modified version of the Job Content Questionnaire was used that included a section on the home-work interface along with job control, job demand, social support, and psychosomatic strains (See *Figure 3.3* on the following page).

Job Control

In this study, the concept of job control was discussed in terms of participation in decision-making and job design. Karasek (1979, p. 296) defines job control "as the working individual's potential control over his tasks and his conduct while he or she is at work." He indicates that job control is conceptualized by two components: a worker's authority to make decisions on his job and the variety of skills that the worker uses on the job. Ganster (1989) defines control as the ability to exert some influence over one's environment so that the environment becomes more rewarding or less threatening. He mentions that participation in decision-making and job autonomy are the main components conceptualizing job control. This study combined the ideas of Karasek (1979) and Ganster (1989) to define the main components of job control as decision-making latitude, task variety, work schedule, and job autonomy.

SECTION II

FOR THE QUESTIONS BELOW, PLEASE CHECK ONLY ONE BOX FOR EACH QUESTION

1. My job requires that I learn new things.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

2. My job involves a lot of repetitive work.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

3. My job requires me to be creative.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

4. My job allows me to make a lot of decisions on my own.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

5. My job requires a high level of skill.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

6. On my job, I have very little freedom to decide how I do my work.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

7. I get to do a variety of different things on my job.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

8. I have a lot of say about what happens on my job.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

9. I have an opportunity to develop my own special abilities.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

10. My job requires working very fast.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

11. My job requires working very hard.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

12. My job requires lots of physical effort.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

13. I am not asked to do an excessive amount of work.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

14. I have enough time to get the job done.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

15. I am free from conflicting demands that others make.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

16. My job requires long periods of intense concentration on the task.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

17. My tasks are often interrupted before they can be completed, requiring attention at a later time.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

18. My job is very hectic.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

19. I am often required to work for long periods with my body in physically awkward positions.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

20. I am required to work for long periods with my head or arms in physically awkward positions.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

21. Waiting on work from other people or departments often slows me down on my job.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

22. How steady is your work? (Check one.)
❑ Regular and steady ❑ Seasonal Frequent layoffs
❑ Both seasonal and frequent layoffs ❑ Other

23. How likely is it that during the next couple of years you will lose your present job with your employer?
❑ Not at all likely ❑ Not too likely ❑ Somewhat likely
❑ Very likely

24. During the past year, how often were you in a situation where you faced job loss or layoff?
❑ Never Faced possibility ❑ Faced the possibility more than once ❑ Constantly ❑ Actually layed off

25. My job security is good.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

26. My prospects for career development and promotions are good.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

27. In five years, my skills will still be valuable.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

28. My supervisor is concerned about the welfare of those under him.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

29. My supervisor pays attention to what I am saying.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

30. I am exposed to hostility or conflict from my supervisor.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

31. My supervisor is helpful in getting the job done.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

32. My supervisor is successful in getting people to work together.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

33. People I work with are competent in doing their jobs.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

34. People I work with take a personal interest in me.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

35. I am exposed to hostility or conflict from the people I work with.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

36. People I work with are friendly.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

37. The people I work with encourage each other to work together.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

38. People I work with are helpful in getting the job done.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

39. I am happy with my life outside of work.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

40. I look forward to returning home at the end of a work day.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

41. I feel comfortable discussing problems at work with partner at home.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

42. There have been no major changes within my personal life (last 12 months).
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

Figure 3.3: Section II. Karasek's (1979) Job Content Questionnaire. Modified to include four additional questions on the home-work interface.

Job Demand

Job demands are measured by the psychological demands scale, which was developed by Karasek (1998). In 1998 Karasek revised the original job demands scale and added four items to the original five items, and verified the reliability and validity of the revised scale. The refined scale included workload, time-pressure, job complexity, job conflict, and interpersonal relationships at work. He showed the internal consistency of the revised scale to be 0 .72 in the male population and 0.71 in the female population (Karasek et al., 1998). A five-point Likert scale designated from 1 as 'rarely' to 5 as 'very often' scored all nine job demands items. The greater the mean score, the heavier the perceived job demands were expected to be.

Psychosocial Support

There is now consistent evidence from a number of cross-sectional (Estryn-Behar 1990; Dew & Parkinson, 1990; Bromet, Dew, Parkinson & Schulberg, 1988; Broadbent & Gath, 1981) and longitudinal studies (Niedhammer, Goldberg & Leclerc, 1998; Stansfeld, Bosma, Hemingway & Marmot, 1998; Niedhammer, Lert & Marne, 1995; Parkes, 1995; Kawakami, et al. 1992) that psychosocial factors at work play an important role in contributing to ill health. Karasek (1979) presented the Job-Strain model that defined the two main psychosocial factors in influencing an employee's health as demand and control. In 1988 Johnson and Hall redefined the Job-Strain model by introducing the concept of work-related social support (the Demand-Control Support Model), suggesting that supporting interpersonal relationships at work may function as a moderator in stressful jobs.

In this study, social support was measured by six questions from the Job Content Questionnaire developed from the job demand–control-social support model by Karasek & Theorell. The questions are related to the atmosphere of the work environment, and

help and support from the colleges and supervisor. The author added an additional four constructs pertaining to the home-work interface to further expand on the psychosocial dimensions that potentially influence employee stress levels.

Section III

Psychosomatic Strains

The Demand, Control, Support Model predicts significant variations in psychosomatic strains. This prediction is borne out of theoretical conjecture and historical evidence. Historically, studies have drawn a close a correlation between Demand, Control, Support and psychosomatic strains. It is theorized that high strain jobs that are characterized by low control and high demands elevate employee stress levels. If the high stress levels continue unchecked for an extended period of time they generally manifest in themselves in one of many psychosomatic strains. It is now generally accepted that job stress can lead to psychosomatic strains and play an important role within the work stress framework.

Most, psychosomatic strains surveys have been inspired by the Mental Status Index developed by Gurin, Veroff and Feld, (1960) and by Langerner's (1962) twenty-two items screening score of psychiatric symptoms. These scales were originally constructed to screen mental patients; however, Seiler (1973) concluded that the scales are best interpreted as measures of psychological strain. Karasek, (1979) used these scales to develop a 12 item psychosomatic strain scale that has been successfully used in National Surveys within the United States to measure the level of psychosomatic strains associated with different jobs. Karasek's psychosomatic strain questions are found in Section III of the survey and shown in *Figure 3.4*.

SECTION III

DURING THE PAST 12 MONTHS, HAVE YOU EXPERIENCED THE FOLLOWING:

1. How often do you become tired in a very short period of time?
❑ Often ❑ Sometimes ❑ Rarely ❑ Never

2. Do you have aches in the lower back?
❑ Often ❑ Sometimes ❑ Rarely ❑ Never

3. Do you have aches in the neck or upper back?
❑ Often ❑ Sometimes ❑ Rarely ❑ Never

4. Do you have sweaty hands which feel damp and clammy?
❑ Often ❑ Sometimes ❑ Rarely ❑ Never

5. Do you feel nervous, fidgety, or tense?
❑ Often ❑ Sometimes ❑ Rarely ❑ Never

6. Do you have A poor appetite?
❑ Often ❑ Sometimes ❑ Rarely ❑ Never

7. Do you have trouble getting to sleep?
❑ Often ❑ Sometimes ❑ Rarely ❑ Never

8. Do you have trouble staying asleep?
❑ Often ❑ Sometimes ❑ Rarely ❑ Never

9. Do you have high blood pressure?
❑ Yes ❑ Borderline ❑ No ❑ Don't Know

10. Do you take tranquilizers or sleeping pills?
❑ Often ❑ Sometimes ❑ Rarely ❑ Never

11. Do you smoke?
❑ No ❑ Yes

12. If you smoke cigarettes, how many do you smoke per day?
❑ Less than 10 ❑ 10-20 ❑ More than 20

Figure 3.4: Section III, Psychosomatic strains

Section IV

Personality

An active interest in Type A personality behaviour in the work place continues to be an area of interest for health care practitioners in their study of job performance and stress. Friedman and Rosenman (1974) demonstrated that a relationship exists between specific behavioural patterns (e.g. highly competitive, impatient, sense of time-urgency, restlessness, pressurized and hostile - believed to characterize the Type A temperament), and an array of psychosomatic ailments. High stress and coronary heart disease being of particular concern. The evidence concerning coronary vascular disease is equivocal and if there is indeed a relationship, it appears that the major predictors of

Coronary Heart Disease lie within the hostility sub-component of the Type A personality (Blumenthal, McKee, Haney & Williams, 1980).

Berry (1998) argued that organizational psychologists are interested in Type A personality characteristics for two reasons,

> " First, the conditions that appear to elicit this behaviour, such as opportunities for achievement, are common aspects of the work environment. Thus, certain individuals may show chronic high arousal and develop an associated cardiovascular problem just by being at work. This is something the organization does not want. Second, it looks as if Type A behaviour results in high work performance and accomplishment. This, of course, is something the organization does want " (Berry, 1998, p. 439).

The present study focuses on the role personality plays in the work stress framework. It uses Jerabek's (1996) personality inventory to characterize the study participants as either having a Type A or a Type B personality. Jerebek, (2002) conducted an assessment of the internal reliability of the scales used in the Personality Inventory. She found that her scale used to assess an individuals personality has a Cronbach's coefficient alpha of 0.9218 in a sample size of 49435 individuals. The Personality Inventory used in the study is located in Section IV of the questionnaire and is displayed in *Figure 3.5*.

SECTION IV

1. I never seem to have enough time to accomplish my goals.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

2. I don't understand people who become so impatient in traffic that they start honking.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

3. I frankly don't care whether I do or do not make it into the top 10%.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

4. I find it difficult and useless to confide in someone.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

5. A driver's license should be more difficult to get in order to avoid having all those idiots on the road.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

6. It doesn't bother me if I cannot finish what I planned for the day.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

7. I often choose to spend time with my friends or family, even though I have something important to do.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

8. I am hardly ever satisfied with my achievements.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

9. I get no particular pleasure out of acquiring things.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

10. It is easy for me to express my feelings.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

11. People who don't know what they want get on my nerves.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

12. I think that hobbies such as fishing or bowling are just a waste of time.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

13. When I finish my task, I feel good about myself.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

14. I function best under stress or pressure.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

15. Talking about emotions is a sign of weakness and can be used by others to get at you.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

16. It doesn't matter whether my family is financially secure. The important thing is to be together.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

17. If everybody did their job properly, my life would be much easier.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

Figure 3.5: Section IV, Type A Personality Indicator

Section V

Organizational Culture

The most widely cited cross-cultural work is that of Hofstede (1983; 1980; 1976) who analyzed data from employees in 67 countries. His work is the cornerstone in studying cross-cultural differences and has been replicated extensively. Hofstede's survey items analyze traditional job attitudes, which result in factors that are defined in terms of cultural values (Ronen, 1997). This study will be using an abbreviated version of the Cultural Assessment Tool (Hagberg & Heifetz, 1999), an objective and quantitative survey that measures an employee's perceptions of their organization's

culture. These include dimensions such as office politics, initiative, role ambiguity, trust, sense of belonging, diversity and teamwork.

Hagbergs, cultural assessment tool has been used extensively in the study of organizational culture. It successfully characterizes the working environment according to employee perceptions and situational responses. An abbreviated version of the Cultural Assessment tool is contained within Section V of the study instrument and is seen in *Figure 3.6.*

SECTION V

1. I am clear about who does what in my organization.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

2. Employees in my organization have confidence in their leaders.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

3. There is high cooperation between work groups in my organization.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

4. Management values participation as a vehicle for producing better quality decisions.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

5. Employees in my organization automatically take the initiative to complete tasks and duties.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

6. Management seems to care only about production and financial performance, not people.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

7. Routine information flow is well coordinated in my work place.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

8. Leadership provides me with the information I need to be successful in my organization.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

9. Our group/unit is refreshingly free of politics.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

10. I work in an atmosphere where people freely provide information to those who need it without regard to an "ownership" issue.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

11. The information I need to my perform my job is readily available.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

12. Everyone in my organization can participate in formulating specific goals and objectives.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

13. Equipment in my organization is state of the art.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

14. The equipment I use is adequate to accomplish my work.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

15. The organization fosters a strong sense of loyalty and belonging.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

16. There is a high level of trust among employees.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

17. Equipment in my organization is well maintained.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

18. I am asked to participate in establishing goals and objectives for myself.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

19. Employees collaborate to improve written policies and procedures.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

20. My management team "walks their talk" relative to new initiatives.
❑ Strongly Disagree ❑ Disagree ❑ Agree ❑ Strongly Agree

Submit Survey

Thank you for completing the above survey.

Figure 3.6: Section V, Hagberg's abbreviated Cultural Assessment Tool.

Hagberg's cultural assessment tool has been previously validated by Hagberg and Heifetz (1999), but the abbreviated version customized for use within this study has not been previously validated. For this reason the author measured the internal consistency of scales used by calculating Cronbach's coefficient alpha for each characteristic of organizational culture being assessed (see *Table 4.1).* After showing adequate levels of internal consistency for each characteristic the author then completed a confirmatory factor analysis to quantify the relationship that exists between organizational culture and its underlying characteristics. A confirmatory factor analysis tests the significance of a specific factor loading within a structural model. By doing so, the researcher is able to quantify the relationship between a variable and it underlying constructs. The Confirmatory factor approach examines whether or not the collected data is consistent with a highly constrained hypothesized model (see *Figure 4.1*). The results of these tests show that the abbreviated version of the Cultural Assessment Tool used within this study to characterize the employees' perceptions of their organization's culture has an acceptable level reliability and validity.

Data Management and Statistical Analyses

Data Management

Participants could return the questionnaire to the author either electronically or by hard copy. Those who returned the questionnaire electronically utilized the company's electronic mail system and hard copy questionnaires were returned by fax or through the company's internal mail delivery system. This collection process, albeit efficient could lead to multiple submissions of the same questionnaire. For example, an employee may have sent a questionnaire by electronic mail to the author and then sent the same questionnaire to the author by a fax. This would result in duplicate submissions

of the same questionnaire. To mitigate and prevent recording data from a single questionnaire more than once a cursory assessment was conducted on the demographic data. Questionnaires returned to the author with identical demographic data were further assessed to ensure the survey was not a duplicate submission from the same individual. This process identified four duplicate questionnaires. The duplicate questionnaires were removed from the study and not included within the total number of returned surveys.

Data from questionnaires submitted electronically was transferred to an Excel database. This database used macros to compile the information into spreadsheets that could be used by other statistical packages such at AMOS. Using macros to compile the data should have resulted in fewer type one measurement errors than if the compilation of the data was done by hand. The data from questionnaires submitted via inter-office mail or by fax was entered into excel spreadsheets manually by the author. To ensure the confidentiality of the questionnaires, all raw data was managed by the author. The accuracy of the data entered manually was validated through two post hoc tests. First, 20% of the data was randomly selected from the Excel database and cross-referenced against the information found on the actual questionnaire. This was done to inspect for discrepant values. Second, all values were checked to determine if they fell within a possible response range. This cursory analysis showed a data accuracy of greater than 99%.

As with most social science research based on the collection of data with the use of questionnaires, incomplete or missing data is an almost inevitable occurrence. Because incomplete data can seriously bias any conclusions that are drawn from an assessment of the data, it must be addressed. The method chosen to handle the missing data within this study is based on an approach that utilizes maximum likelihood estimation and, thus is theoretically based.

Arbuckle (1996) describes the extent to which maximum likelihood estimation, in the presence of incomplete data offers several important advantages over both listwise

and pairwise deletion processes. First, where the unobserved values are missing completely at random, listwise and pairwise estimates are inefficient in how they handle data and result in the loss of information from the reduced sample size. Maximum likelihood estimation does not result in any loss of data. Second, where the unobserved values are only missing at random, both listwise and pairwise estimates can be biased; maximum likelihood estimates are asymptotically unbiased. Third, pairwise estimation, in contrast with maximum likelihood estimation, is unable to yield standard error estimates or to provide a valid method for testing hypothesis. Finally, when missing values are non-ignorable, all procedures can yield biased results. However, when compared with other options, maximum likelihood estimates will exhibit the least bias analysis (Schafer, 1997).

In this study nine usable cases would have been eliminated from analyses under list-wise deletion practice. However, six cases among the nine cases were saved using the maximum likelihood technique. Of the 189 surveys returned, nine had incomplete data. There are no clear guidelines regarding what constitutes a "large" amount of incomplete data, although Kline (1998) suggests that it should probably constitute less than 10% of the data. Using 10% as a guideline, this study was well within the acceptable range for incomplete data having less than nine surveys returned with incomplete data. The maximum likelihood estimation for missing parameters was conducted using Analysis of Momentum Structure (AMOS).

The concept of likelihood is closely related to the more common concept of probability. We speak about the probability or likelihood of observing events. This concept forms the basis of the maximum likelihood estimation (MLE) for missing data. MLE works by estimating a likelihood function for each individual based on the variables that are present so that all the available data are used. For instance, the MLE of a parameter is the value of the parameter that is most likely to have resulted in the observed data. When data are missing, the AMOS program factors the likelihood function. This function is computed separately for those cases with complete data on

some variables and those with complete data on all variables. These two likelihood's are then maximized together to estimate a value for the missing data.

Statistical Analysis

Demographic Effects

Analysis of Variance (ANOVA) was used to assess the effects of the demographic variables, personality, and home-work interface on the latent constructs. The critical value used in this analysis was 0.05. Any demographic effect associated with a critical value of less than 0.05 was said to have a significant effect on the latent variable.

Analysis of Measures

The study began with the development of a conceptual and theoretical model showing linkages between the endogenous constructs and their measurable variables. In Chapters II and III of this study, the supporting relevant theories and discussion of the measurement variables associated with each of the constructs was provided in conjunction with a review and a description of the methodology used to answer each of the five research questions being investigated.

How the constructs are interrelated with each other was defined by a hypothetical framework for occupational work stress that included both main and interaction effects of organizational culture on occupational stress. Organizational culture was operationalized to identify what characteristic of the organization's culture had the greatest influence on the proposed work stress framework. In other words, each characteristic used to define the culture of the organization was assessed to determine

the magnitude of its influence within the work stress framework and how the characteristic interacted within the work stress framework, either directly by influencing the psychosomatic outcomes of stress or indirectly by modifying the individuals perception of the stressful event. Subsequently, it was determined that Structural Equation Modeling was the only statistical tool available that could simultaneously assess the main and interaction effects of multiple constructs within the hypothesized workstress framework.

In structural equation modeling (SEM), the development of the hypothetical model depicting the linkages between the latent constructs and their empirical observed indicators is considered as a measurement model, while the theoretical relationships between or among the constructs is referred to as a structural model (Byrne, 1998; Jöreskog, 1993; Bollen, 1989). Both models are key to assessing how each of the constructs influences the work stress framework.

Measurement Model

The measurement model specifies the patterns of how the observed indicators load on the constructs, and also provides the measurement properties of how much the observed indicators are reliable (reliability) and valid (validity). A structural model on the other hand specifies which of the construct(s) directly or indirectly influences or changes the values of other constructs in the model (Byrne, 1998; Maruyama, 1998). Before testing the structural models used in the analysis of the hypothesis, the measurement models have to be tested in order to ensure that scales used in the study behave as they are intended. Overall model fit in structural equation modeling is sensitive to the measurement model as well as the structural model (Bollen, 1989) and the researcher is able to increase the validity of the conclusions drawn from the SEM if it is shown that the scales behave as intended.

Reliability is a fundamental issue in any measurement scale. Scale reliability is

considered as the proportion of variance attributed to the true score of the latent construct (DeVellis, 1991). It is usually measured by methods that test the internal consistency of the scale. Values close to one indicate high reliability by characterizing the homogeneity of the items that make up the measurement scale. The meaning of internal consistency is the extent that its items are inter-correlated. Thus, high inter-item correlation provides evidence that the items of a scale have a strong relationship to the latent construct and is potentially measuring the same thing. In this study, Cronbach's coefficient alpha is used to assess the internal consistency of each measurement scale.

By calculating Cronbach's alpha along with the item-to-total correlation for each item examined, the overall reliability of the measurement scale can be determined. It is generally recommended that if a measurement scale displays a Cronabach's coefficient above 0.70 it is considered acceptable as an internally consistent scale. If the scale is shown to have a coefficient alpha below 0.70, the scale can still be used but it should be examined for any sources of measurement error such as inadequate sampling of items, administration errors, situational factors, sample characteristics, number of items, and theoretical errors that may have occurred in the development of the measurement scale (Gable & Wolf, 1993).

Cronbach's alpha was calculated for each of the latent constructs in order to assess the reliability of the scales used. All of the scales included in the questionnaire showed adequate levels of internal consistency reliability. The internal reliability for the measures ranged from a high of 0.933 for coworker support to a low of 0.619 for role ambiguity. *Table 3.1* details how each question from the Questionnaire was used to assess the latent constructs being investigated. The first column identifies which construct was being assessed, the second column identifies the corresponding variables used to quantify the construct, and the third column outlines the formula used to assess the construct along with the weighting used for each of the questions. The Sections noted within *Table 3.1* correspond to the five Sections within the Questionnaire.

Table 3.1: Summary of variables and corresponding questions for each endogenous construct.

Endogenous Construct	Variables	Forumla (Q= Question)
Psychological Job Demands (Section II)	• Work intensity • Work quantity • Enough time • Conflicting demands • Level of concentration	((Q10 + Q11)3 + (15-(Q13+Q14+Q15))2
Decision Latitude (Section II)	• Skill Discretion • Decision Authority	(Q1 + Q2 + Q3 + Q5 + Q7 + Q9) + (Q4 + Q6 + Q8)
Organizational Culture Section III (Q1 - Q20) Section II (Q21 -Q38)	• Leadership • Supervisor Support • Coworker Support • Teamwork • Trust • Role Ambiguity • Initiative • Information • Sense of Belonging.	(Q2 + Q6 + Q20) + (Q28 + Q29 + Q30 + Q31 + Q33) / 10 + (Q33 + Q34 + Q35 + Q36) / 10 + ((Q15 + Q21+ Q37 + Q38) + (Q3)) / 10 + (Q16 + Q20) + (Q1 + Q4 + Q12 + + Q18 + Q19) + (Q5) + (Q7 + Q8 + Q9 + Q11) + (Q26 + Q27 +Q29)
Home Work Interface (Section II)	• Happiness • Major Changes • Communication / Support	(Q39 + Q40) + (Q41) + (Q42 x 2)

Table 3.1: Continued

Endogenous Construct	Variables	Questions
Psychosomatic Strains (Section III)	• Endurance • Back and neck pain • Anxiety • Appetite • Blood pressure	$((4\text{-}Q1)^2 + (4\text{-}Q2)^2 + (4\text{-}Q3)^2 + (4\text{-}Q4)^2 + (4\text{-}Q5)^2 + (4\text{-}Q6)^2 + (4\text{-}Q9)^2)/42$
Sleeping problems (Section III)	• Quality of sleep	$((4\text{-}Q7)^2 + (4\text{-}Q8)^2 + (4\text{-}Q10)^2)/18$

Structural Model Validity

The second step used to assess the reliability/validity of the survey instrument was completed with the use of confirmatory factor analysis. After showing adequate levels of internal consistency each secondary endogenous construct was examined through a process of confirmatory factor analysis (CFA). CFA is used to test the measurement model by quantifying the relationship that exists between the observed variable and its underlying constructs. The CFA approach examines whether or not the collected data are consistent with a highly constrained hypothesized model, or a priori specified model (Byrne, 1998; Maruyama, 1997). CFA allows for the identification and clustering of the observed variables in a pre-specified, theory-driven hypothesized model to evaluate to what extent a particular collected data set confirms what is theoretically believed to be its underlying constructs (Mueller, 1996).

Since CFA is performed on the premise that the observed variables are not perfect indicators for the underlying constructs, each construct in the measurement model is tested separately and then the overall measurement model is evaluated.

Demographics were excluded from factor analysis because factor analysis is not possible for objective measures or single-item measures. Based on standardized residuals between manifest variables and parameter estimates, the least reliable items were screened. In this procedure, items that are not loaded well on any latent variables can be excluded from inclusion in the model to increase the fit of the model. Once the assessment of the measurement model is completed the researcher is then able to test the hypothesized relationships among the variables with the use of structural equation modeling (SEM).

Structural Equation Modeling

During the process of structural equation modeling, once the necessary information and requirements of the full structural model are derived, the exogenous (similar to independent) and endogenous (similar to dependent) constructs can be defined. Accordingly, all of the constructs fall into one of these two categories and a resulting model can be developed to assess the relationships between the constructs with the use of path diagrams. It is SEM's ability to assess the relationship between each of the constructs used within the model, which is its greatest strength.

In the model, an exogenous construct can be causally related only to an endogenous construct. In other words, SEM estimates a series of separate, but interdependent, multiple regression equations simultaneously by specifying the structural model (Hair, Anderson, Tatham & Black, 1995). Thus, it is a very useful technique when one dependent variable becomes an independent variable in subsequent relationships. For example, organizational culture is treated initially as a dependent variable, and in turn becomes an independent variable relating to its influence on psychosomatic strains.

SEM also differs from other multivariate techniques in that it uses only the variance/covariance or correlation matrix as its input data. The focus of SEM is not on

individual observations, but on the pattern of relationships across participants (Hair, Anderson, Tatham & Black, 1995), which is why the correlation or covariance matrix is used as input data instead of individual data points. For this reason, SEM a comprehensive statistical approach to testing hypotheses about relations, is the choice of statistical analysis among behavioural science researchers. Another useful tool of SEM is its ability to represent the relationships between observed and latent variables by path diagrams. This drastically increases the functionality of the statistical program and aids in the interpretation of the data.

Path diagrams portray relationships between constructs in SEM allowing the researcher to present a visual portrayal of the predictive relationships as well as the associative relationships. In the structural model proposed in this study, five theoretical constructs are discussed in terms of not only their posited relationships with the observed indicators, but also structural relationships among the constructs. Those include organizational culture, decision latitude, job demands, psychosomatic strain, and sleeping problems.

Of these constructs, decision latitude and organizational culture are second-order constructs and job demands, psychosomatic strains, and sleeping problems are first-order constructs. "Second-order constructs are used in situations where the meaning of a conceptual entity cannot be captured through individual observed variables, but must be captured through two or more latent constructs" (Anderson & Gerbing, 1988, p. 418). In this study, the second-order latent constructs of decision latitude and organizational culture are defined by a number of first-order latent constructs, and the first order latent constructs are defined by several manifest variables. This pyramidal structural equation results in a base of 14 first order latent constructs and two-second order latent constructs in the development of a model to describe the work stress framework.

As noted earlier, a minimum recommended sample level for the estimation of SEM is ten observations for each estimated parameter (Hair, Anderson, Tatham & Black, 1995). Since a total of 16 latent constructs were estimated in the study (14 first

order and 2 second order constructs), the sample size for this study should exceed 160. The sample size of this study was 186; therefore the sample size of the study should have met the minimum recommended level. This would have been the case except based on the results of the influence of personality on the reported number of psychosomatic strains, the study population had to be divided into two groups and a multi-group analysis was completed.

An Analysis of Variance (ANOVA) was performed on each of the extraneous exogenic variables measured in this study. This included demographic information such as age and education along with other measures such as personality and home-work interface. Personality demonstrated a statistically significant variance when assessed against the reported levels of psychosomatic strains. Individuals that purported a Type A personality had responses for psychosomatic strain and certain aspects of the organization's culture that were significantly different than test subjects displaying a Type B personality. As a result, the test subjects were divided into two groups (Type A and Type B personalities) and a multi-group analysis was performed using AMOS. Multi-group analysis is used to assess the fit of a specific model to two sets of data at once. AMOS is capable of modeling data from multiple groups simultaneously and was used to conduct multi-group structural equation models within this study.

As a result of dividing up the study population into two groups the sample size of the population was effectively reduced by half but the number of latent constructs assessed in the model remained the same. As a result, the power issue could have become a serious problem because a large number of constructs were assessed using what was essentially a relatively small sample. Thus, the sample size needed to be enlarged or the number of parameters needed to be decreased to maintain eligible power. To effectively study the work-stress framework the number of constructs could not be reduced and it was not possible to increase the sample size of the population without the introduction of additional extraneous variables. To overcome this problem the study

utilized parceled data, a statistical method often used when a researcher needs to reduce the number of parameters assessed in a model, but the sample size cannot be changed.

Parceled Data

The measurement model for the test of personality was tested with parcel unit data. Ideally, the best approach to model testing is to use item-unit data but as discussed above this was not an acceptable option. That said, using parcel-unit data is a popular alternative in relation to the power issue when the sample size is small and the number of parameters to be identified is large (Bandalos, 1997). The use of parcels in structural equation modeling has been advocated on several grounds. In addition to maintaining the statistical power of the model in lower sample sizes, it is said to be more reliable than individual items and to have results that are more definitive (Kishton & Widaman, 1994). Another commonly offered advantage for the use of item parceling is that parcels have distributions that are more continuous and normally distributed than those of individual items, and thus will conform more closely to the assumption of theory based estimation methods such as maximum likelihood. Marsh(1988) further states that the advantages of parceling include parsimony, including more normally distributed indicators, less idiosyncratic indicator variance, less unique variance, and as mentioned earlier the ability to use smaller sample sizes. There is however disadvantages to using parceled data. Marsh(1988) lists the following disadvantages of parceling: information about the individual items will be lost, items being parceled must be reasonably uni-dimensional, and parameter estimates and factor scores derived from parceled analyses will be dependent on the particular items parceled together. In this model, the second-order constructs are parceled as first-order constructs thereby reducing the number of parameters within the model while maintaining its statistical power.

Model Fit

Once the model is specified, its plausibility is tested based on sample data that comprise all observed variables in the model. The primary task in this model testing procedure is to determine the goodness-of-fit between the hypothesized model and the sample data. The structure of the hypothesized model is imposed on the sample data, and then tested as to how well the observed data fit this restricted structure. There should be a discrepancy between the observed data and the hypothesized model, because it is highly unlikely that a perfect fit will exist between the two. This discrepancy is termed the residual error and is an important factor in determining the plausibility of the model.

"The model-fitting process can be summarized as:

Data = Model + Residual

Where **Data** represents the score measurements related to the observed variables as derived from individuals comprising the sample. **Model** represents the hypothesized structure linking the observed variables to the latent variables and the **Residual** represents the discrepancy between the hypothesized model and the observed data" (Byrne, 1998, p. 7).

If goodness-of-fit is adequate, it can be said that the model supports the plausibility of the postulated relations among variables, whereas the tenability of such relations is rejected if the goodness-of-fit is inadequate (Byrne, 1998). Generally, models that have fit indices close to one are considered acceptable.

Research Question Methodology

Research Question 1: In what ways, if any, do the endogenous constructs analyzed in this study differ according to the demographic characteristics of the population.

To answer this question a one-way analysis of variance is performed that compares the mean squares for the various demographic features of the study population against the mean squares of each of the endogenous constructs. An alpha of 0.05 is utilized to determine it the variance assessed is significant or not. If the ANOVA of the endogenous constructs shows a 'p' value of less than 0.05 it implies that the means between the variables being assessed differ more than would be expected by chance alone. In this case, 'p' values less that 0.05 suggest that the demographic variable has a statistically significant impact on the endogenous construct being assessed.

If the ANOVA showed a significant p-value then the means of the two variables being assessed were examined further in order to determine the nature of the significant effect. This was done utilizing "post-hoc tests". The effects are considered to be non-significant, if the 'p' value is calculated to be more than 0.05, and as a result, no further analysis of the relationship was conducted.

Research Question 2: In what ways, if any, do the endogenous constructs analyzed in this study differ according to the personality of each of its participants.

To answer this question a one-way analysis of variance was performed on the mean squares of personality types A and B against the mean squares of each of the endogenous constructs. As with *Research Question 1*, an alpha of 0.05 was utilized to determine it the variance assessed was significant or not.

Research Question 3: In what ways, if any, do the endogenous constructs analyzed in this study differ according to the non-work stressors experienced by each of its participants.

To answer this question a one-way analysis of variance was again performed. In this analysis the entire sample was divided into two groups: low non-work stress and high non-work stress. The mean score of the summed non-work stressors was used as a dividing point to classify each of the groups. As with Research Questions 1 & 2, an alpha of 0.05 was utilized to determine it the variance between the two groups was significant or not.

Research Question 4: How does organizational culture, as perceived by the worker affect the work stress framework, psychosomatic strains, and quality of sleep?

To test this research question, the study employed structural equation modeling (SEM) with the use of the statistical program AMOS version 5.0 to analyze the relationships that existed between each of the variables in the work-stress framework. Because personality was shown to have a statistically significant effect on the number of reported psychosomatic strains and certain exogenous constructs of Organizational Culture the study participants were divided into two groups. Group one consisted of those individuals possessing a Type A personality and the other group consisted of individuals having a Type B personality. These two groups were then assessed with multi-group analysis using Structural Equation Model to determine the influence of organizational culture within the work stress framework. The Structural Equation Model, developed by the author, used to assess this relationship is shown in the path diagram in *Figure 3.7.*

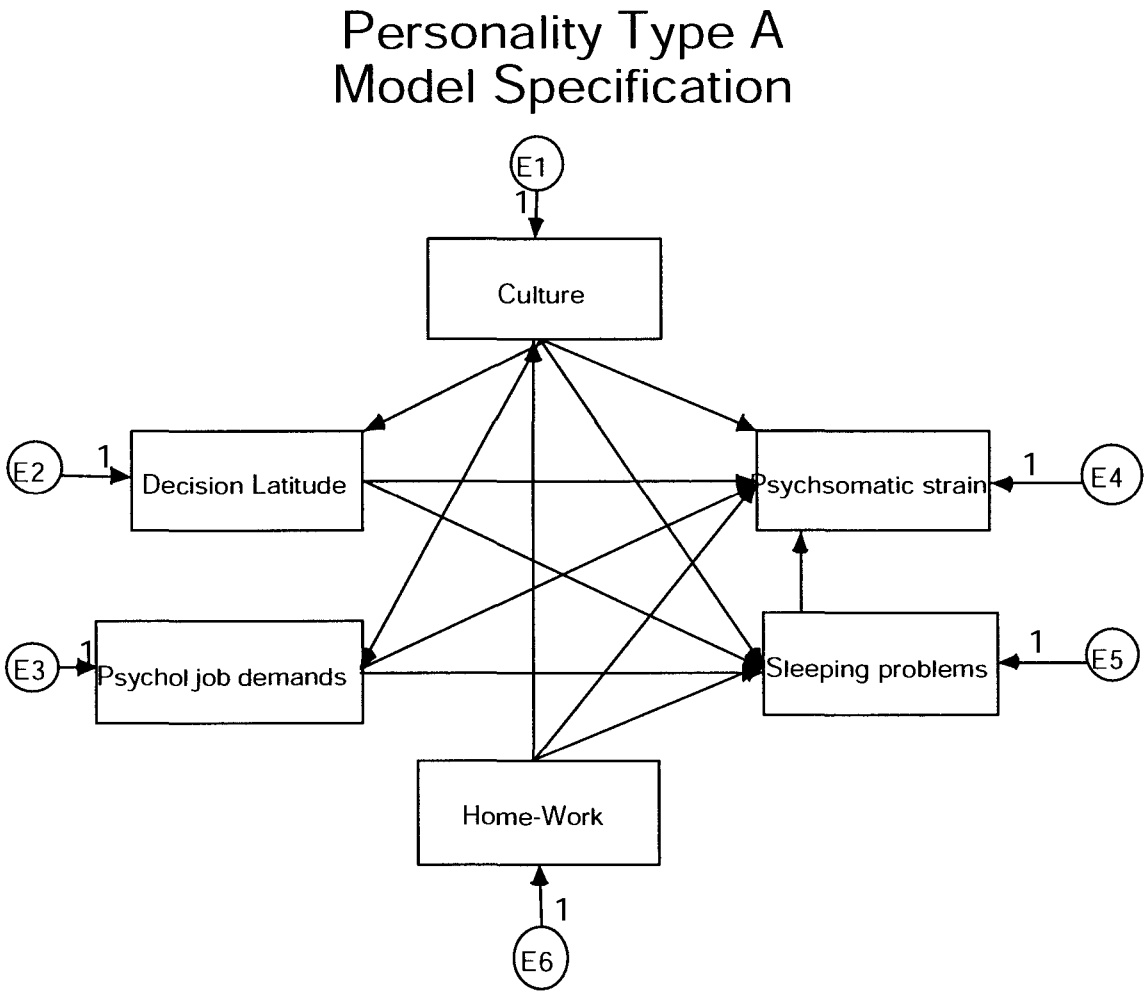

Figure 3.7: Path diagram of the SEM model representing the work-stress framework.

In each of the path diagrams depicted within this report, the rectangles represent observed or directly measured variables. Circles or ellipses represent unobserved factors and the arrows portray paths indicating causal relationships between the constructs. Each of the variables within the path diagram has an unobserved "E#" attached to it with a single arrow. This represents the measurement error associated with the variable. It is unrealistic to expect that two factors will perfectly predict an observed variable, so a specific error factor is included for each observed variable,

which is represented by the enclosed "E". The number "1" above each of the arrows connecting the unobserved error to its variable specifies the scaling associated with the model. In each of the models a scale of "1" was used to satisfy the scaling requisite by constraining the model to a non-zero number.

After assessing the relationships represented in the path diagram in *Figure 3.7* a "post hoc" analysis was conducted to identify the interaction effect of organizational culture on the proposed work stress framework. This test provided further insight into the role of organizational culture in mediating the negative outcomes of work place stressors.

Research conducted by Karasek (1979) provides ample evidence to support the theory that those employees working in jobs with high psychological demands and low decision latitude report statistically higher numbers of psychosomatic strains than any other group within Karasek's job strain model. In Karasek's job strain model these individuals are said to be in the High Strain group. Because high strain individuals generally report higher levels of psychosomatic strains the high strain group was chosen to test the modifying effects of organizational culture on the number of reported psychosomatic strains.

First, the population was divided into those individuals that reported high decision latitude and those individuals that reported low decision latitude. The individuals that reported low decision latitude were then divided into two groups based on their level of psychological job demands. The high strain group, (low decision latitude and high psychological job demands) was then divided into two groups based on their perception of organizational culture. A two sample T-test was then performed to determine if those individuals that perceive their working environments as being restrictive report significantly higher levels of psychosomatic strains than their counter parts who work in an environment having an enabling culture. This is graphically displayed in *Figure 3.8.*

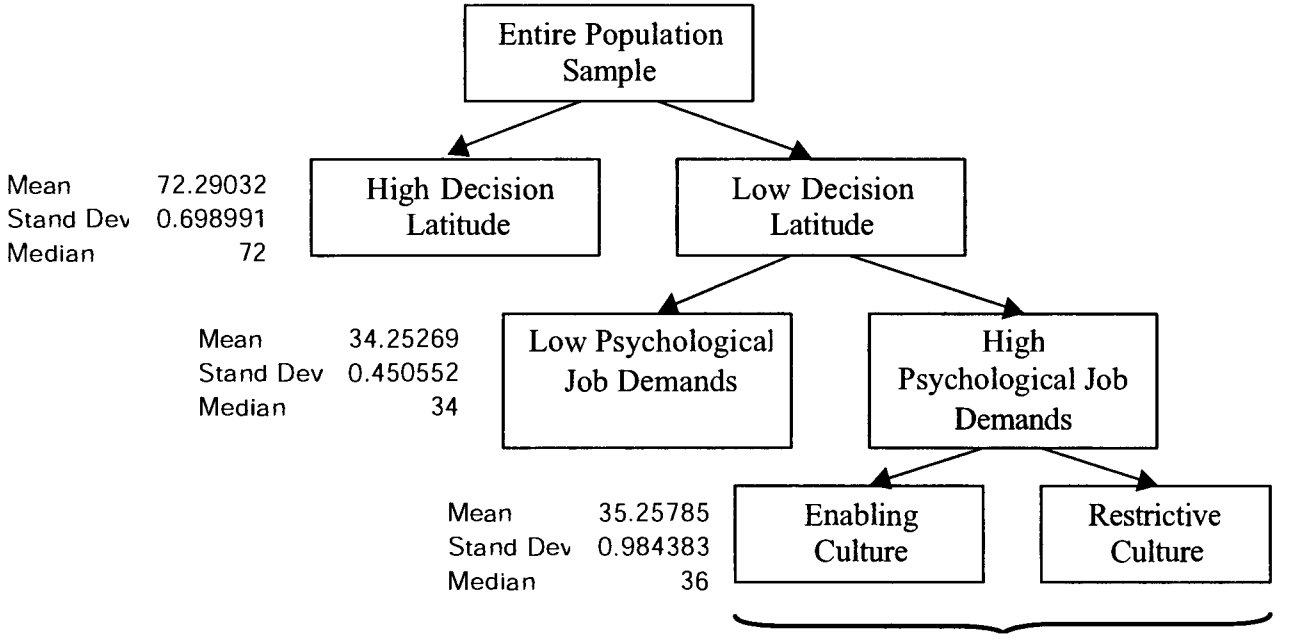

Figure 3.8: Subset of the population used to assess the modifying effects of organizational culture on the work stress framework.

In all cases, the median score of the population was used as a dividing point to classify each of the groups. The median score has been frequently used to distinguish between two groups in multi-group analysis when the median value is not far from the mean value. The median value was appropriate to use in this study because in each of the cases the median value closely matched the mean value of the population.

According to Karasek (1979), high strain groups are characterized by low decision latitude and high psychological job demands. First, those individuals that reported low decision latitude were identified (below a median score of 72). This group was then divided into two separate groups based on their level of psychological job demands. Of this grouping, those that reported high psychological job demands (above a median value of 34) were identified as the high strain group.

The high strain group of participants was then grouped according to how they characterized the organizational culture of their work group. Once again the median value of the organizational culture scale (36) was used to classify individuals as either working in an organization with an engaged culture or a restrictive culture. It is hypothesized that high strain individuals working within an organization displaying the characteristics of an engaged culture would report fewer psychosomatic strains than those high strain individuals exposed to a work environment characteristic of a restrictive culture. Multi-group analysis and associated t-tests were then utilized to test this hypothesis. Multi-group analysis has been successfully used in the past to estimate moderating effects of certain factors or treatments on path relations between variables (Jorëskog & Sörbom, 1996).

Research Question 5: What characteristics of organizational culture are closely related to the job stress framework, psychosomatic strains, and sleeping problems?

The last measurement model was developed to answer the question posed above. A path diagram was developed that included all the primary endogenous constructs of organizational culture to determine which component of an organization's culture shows the greatest influence within the work-stress framework. The model *(Figure 4.3)* was then assessed with the use of Structural Equation Modeling using AMOS 5.0. This analysis provided the factor loading patterns for each aspect of an organization's culture within the work-stress framework. By determining which characteristic of an organization's culture loads more heavily on the work-stress framework, health care professionals will be able to target specific management strategies that can be used to lower employee stress levels.

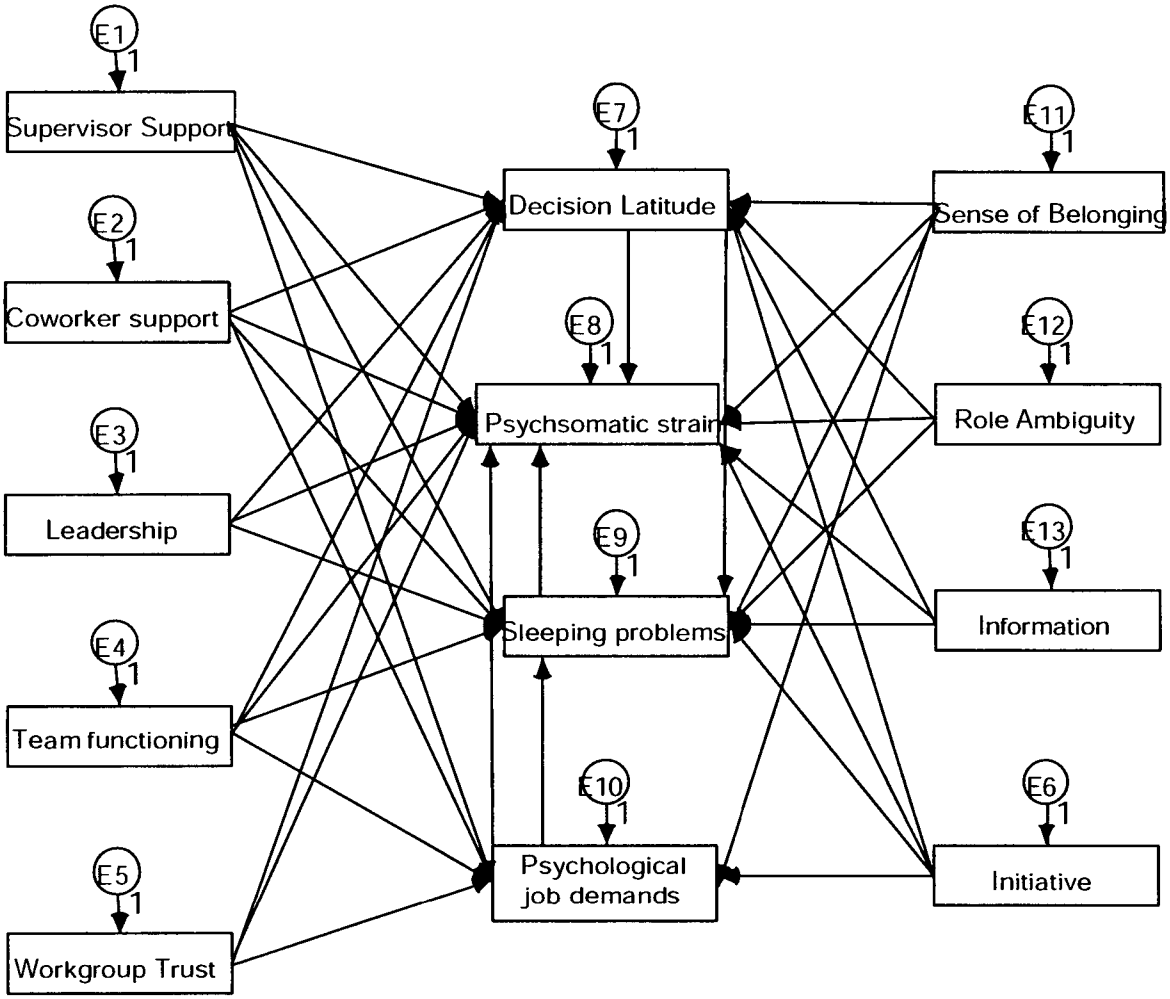

Figure 3.9: SEM Model displaying the pathways associated with each aspect of an organization's culture within the work-stress framework.

Interpretation of Results

All research questions were interpreted in terms of two aspects: overall model fit and parameter estimates. The overall fit index generally indicated the degree of fit the data has to the hypothesized structural and measurement models. The fit index however, does not specifically test the data to the hypothesized path relationships. The estimates for the parameters can however answer whether the hypothesized path relationships within the model were satisfied. Each parameter estimate is examined with the use of a two-tail test. Standardized estimates are generated and the greater the estimate the stronger the relationship between the two latent constructs. By using the model fit index along with the parameter estimates the researcher is able to provide an analysis of the data in an attempt to answer the research question under investigation.

When measurement and structural models are evaluated, three types of measures use to assess Model fit are generally utilized: Absolute Fit Measures (AFM), Incremental Fit Measures (IFM), and Parsimonious Fit Measures (PFM) (Byrne, 1998; Hair, Anderson, Tatham & Black, 1998; Maruyama, 1998; Hu & Bentler, 1995). An Absolute Fit Measure is used to directly evaluate how well the theoretical model fits the sample data. The Incremental Fit Measure assesses the proportionate fit by comparing a target model with a more restricted, nested baseline model. Lastly, a Parsimonious Fit Measure is used to diagnose whether model fit has been achieved by over-fitting the data with too many coefficients.

Four of the most commonly used Absolute Fit Measures in the evaluation of models are the chi-square test, the non-centrality parameter (NCP), the root mean square residual (RMSR), and the root mean square error of approximation (RMSEA). The chi-square statistic is used to test the existence of relationships between the rows and columns in a contingency table. Generally, figures obtained below 0.05 indicate that the rows and columns within the contingency table are dependent. The chi-square statistic

is however very sensitive to sample size and the complexity of the model. For this reason, the chi-square statistic is often related to the degrees of freedom. A low chi-square statistic relative to the degrees of freedom indicates that there is a difference between the observed and estimated covariance matrices with a statistically significant value ($p < 0.05$). Because the Chi-square is heavily influenced by the sample size (Bollen & Long, 1993), other goodness-of-fit indices are suggested to help the model evaluation (Jöreskog & Sörbom, 1996; Bentler, 1990).

As another absolute fit index, the non-centrality parameter (NCP) shows the results of another measure of the likelihood-ratio chi-square statistic that is less affected by the sample size of the study group. This fit measure shows the average squared Euculidean distances between the estimated model and the unrestricted model. Since this fit index cannot be statistically tested, it is recommended to use this measure in making comparisons between alternative models. The Goodness-of-fit index (GFI) represents the overall degree of fit, indicating a non-statistical measure ranging in value from zero (poor fit) to 1.0 (perfect fit). Thus, a higher score indicates a better fit.

The standardized root mean square residual (SRMR), represents the average difference between the predicted and observed variances and covariance's in the model (Hu & Bentler, 1999). The smaller the standardized RMR, the better the model fit. Thus, when model fit is perfect, the SRMR is 0.

The root means square residual (RMSR) explains an average of the residuals between observed and estimated input matrices and is calculated by the square root of the mean of the squared residuals. The root mean square error of approximation (RMSEA) represents a close approximation of fit relative to the degrees of freedom that could be expected if the model is estimated in the population, not just from the sample drawn for the estimation (Steiger, 1990). If the RMSEA point estimate is less than 0.05 and the lower and upper boundaries of confidence interval are less than the recommended values of 0.05 and 0.08 respectively (Browne & Cudeck, 1993); and the probability value associated with this test of close fit is greater than 0.50 (Jöreskog &

Sörbom, 1996), it can be said that the degree of approximation in the population is very small and the model fits the data well. In these cases, the model is considered acceptable.

As the second class of measures provided by AMOS, the incremental fit measures can be evaluated in order to compare the proposed model to some baseline model. The common examples of group of this fit indexes are the adjusted goodness-of-fit index (AGFI), the Tucker-Lewis index (TLI), the normed fit index (NFI), the relative fit index (RFI), and the comparative fit index (CFI).

The AGFI as an extension of the GFI is adjusted by the ratio of degrees of freedom for the proposed model to the degrees of freedom for the null model. Using this statistic, it is recommended that a value greater than or equal to 0.95 is an acceptable level for a good fit. The Tucker-Lewis index (TLI; Tucker & Lewis, 1973) also known as the Non-normed fit index (NNFI), is used for evaluating factor analysis and can also be used for comparisons between alternative models by substituting the alternative model for the null model. The TLI appropriately penalizes model complexity and appropriately rewards model parsimony.

Hu and Bentler (1999) suggest that:

> " TLI is relatively: (1) insensitive to sample size, (2) sensitive to model misspecifications, (3) insensitive to violations of assumptions of multivariate normality, and (4) relatively insensitive to estimation methods" (Hu & Bentler, 1999, p. 17).

They also recommend that a TLI value greater than or equal to 0.95 is an acceptable level for a good fitting model.

The NFI, RFI, and CFI are also used for a relative comparison of the proposed model to the null model or independent model, which ranges from zero (poor fit or no fit at all) to 1.0 (perfect fit). It is suggested that a good fitting model will obtain a value

greater to or equal to 0.95 for all of these statistical functions. In general, larger values indicate higher levels of goodness-of-fit.

As the third class of measure, the Parsimonious Fit Measures include the parsimonious normed fit index (PNFI) and parsimonious goodness-of-fit index (PGFI). These measures were used to evaluate whether model fit has been obtained by "over fitting" the data with too many coefficients. The PNFI explains the number of degrees of freedom used to achieve a level of fit. Higher values of the PNFI are better. The PGFI takes into account the complexity of the hypothesized model in the assessment of the overall fit. Typically, a PGFI value larger than 0.50 indicates that the model has an acceptable fit (Byrne, 1998).

Chapter III Summary

This chapter has outlined the methodology used to answer each of the research questions posed by the author. A description of the population was then presented along with a the measurement instruments and a summary of how the data was collected. A description of the data preparation, statistical techniques, and data analysis was also presented.

CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

Introduction

In this chapter the author reports the findings and the results of the surveys used in the study. The first section addresses the validation of the measurement model, followed by a summary of the participants' demographic and occupational characteristics in the second section. The third through the sixth sections summarize the findings of the data used to answer each of the five research questions. The third section presents the findings of organizational culture at work in terms of the main effects on the proposed work stress framework. The fourth section presents the interaction effects of organizational culture at work on the proposed work stress framework. The last two sections identify which characteristics of an organization's culture have the greatest influence on the number of psychosomatic strains reported by participants.

Reliability and Validity of Measurement Models

The first step in the analysis of the measurement models is to assess the reliability of the scales used to characterize each of the latent variables. Reliability is a fundamental issue in any measurement scale. This is particularly true for psychosocial research that uses summated scales to predict the constructs that are to be used in the structural models. Since summated scales are an assembly of interrelated items designed to measure underlying constructs, it is very important to know whether the

same set of items would elicit the same responses if the same questions are recast and re-administered to the same participants. Variables derived from test instruments are declared to be reliable only when they provide stable and reliable responses over a repeated administration of the test.

Scale reliability is considered as the proportion of variance attributed to the true score of the latent construct (Gable & Wolf, 1993; DeVellis, 1991). Thus, a high inter-item correlation in part explains that the items of a scale have a strong relationship to the latent construct and are possibly measuring the same thing. In this study, the internal consistency of each measurement scale was assessed with the use of Cronbach's coefficient alpha. By calculating the Cronbach's alpha along with the item-to-total correlation for each item examined the overall reliability of the measurement scale was determined.

The reliability analysis of the scores used to assess each of the constructs is summarized in *Table 4.1*.

Table 4.1: Reliability Analysis (Cronbach's alpha) of Endogenous Constructs

Endogenous Construct	Cronbach's Reliability Coefficient
Organizational Culture	0.831
Psychological Job Demands	0.758
Decision Latitude	0.905
Psychosomatic Strain	0.757
Sleeping problems	0.822
Home-Work Relationship	0.836
Leadership	0.705
Supervisor Support	0.840

Table 4.1: Continued

Endogenous Construct	Cronbach's Reliability Coefficient
Coworker Support	0.936
Teamwork	0.786
Trust	0.628
Role Ambiguity	0.619
Initiative	0.703
Information	0.701

The results for the reliability of the scales used for the endogenous constructs revealed reasonably high alphas for each of the constructs used except for Alignment / Role Ambiguity (0.619) and Trust (0.628). As a correlation, the alpha can range in value from 0 to 1 (negative values can occur when items are not positively correlated with each other). Like other coefficients, the alpha can also be squared to identify the proportion of variance it shares with other items. Based on this, DeVellis (1991) recommends an alpha below 0.60 as unacceptable; 0.60-0.65 undesirable; 0.65-0.70 minimally acceptable; 0.70-0.80 respectable; 0.80-0.90 very good; and if much above 0.90, he suggests that it is an excellent fit and the researcher should consider shortening the scale. For a few of the scales used in the study, deletion of one item would have slightly improved the reliability, but since deletion of these items would not have greatly improved the reliability of their specific scale, these items were retained.

Whereas reliability is related to how consistent a set of items is, validity is associated with whether a particular construct is the underlying cause of item covariation (DeVellis, 1991). Validity usually refers the extent to which the measurement items or indicators measure what they are supposed to measure (Hair,

Anderson, Tatham & Black, 1998). Construct validity deals with the adequacy of a scale as a measure of a specific variable.

The purpose of a measurement model is to describe how well the observed indicators serve as a measurement instrument for the latent variables. In other words, the measurement model depicts the links between the latent variables and their observed measures. Confirmatory Factor Analysis (CFA) was used to estimate the adequacy of the measurement model for each of the constructs used to characterize an organization's culture. The adequacy of the model fit was determined by several goodness of fit statistics, including Bollen's Relative Fit Index (RFI), Goodness-of- fit Index (GFI), the minimum discrepancy divided by the degrees of freedom (CMIN/DF), and the Comparative Fit Index (CFI).

The primary task in the model-testing procedure is to determine the goodness-of-fit between the hypothesized model and the sample data. Chi-square has been the traditional measure used to test the closeness of fit between the unrestricted sample covariance and the restricted covariance matrix. Therefore, a nonsignificant chi-square difference between the hypothesized model and the sample data indicates that the hypothesized model is well fitted to the sample data. Bollen's (1989) RFI compares the fit of an AMOS model to a baseline model. RFI values close to 1 indicate a very good fit and in line with this, Byrne (2001) reports that a value above 0.95 in the RFI index indicates superior fit with values above 0.70 being acceptable. The GFI is a measure of the relative amount of variance and covariance in the sample that is jointly explained by the sample. The GFI index ranges from zero to 1.00, with values close to 1.00 being indicative of a good fit. The CFI compares the fit of an AMOS model to a baseline model. CFI provides a measure of complete covariation in the data, and a value of close to 1.0 indicates an acceptable fit to the data. (Byrne, 1998).

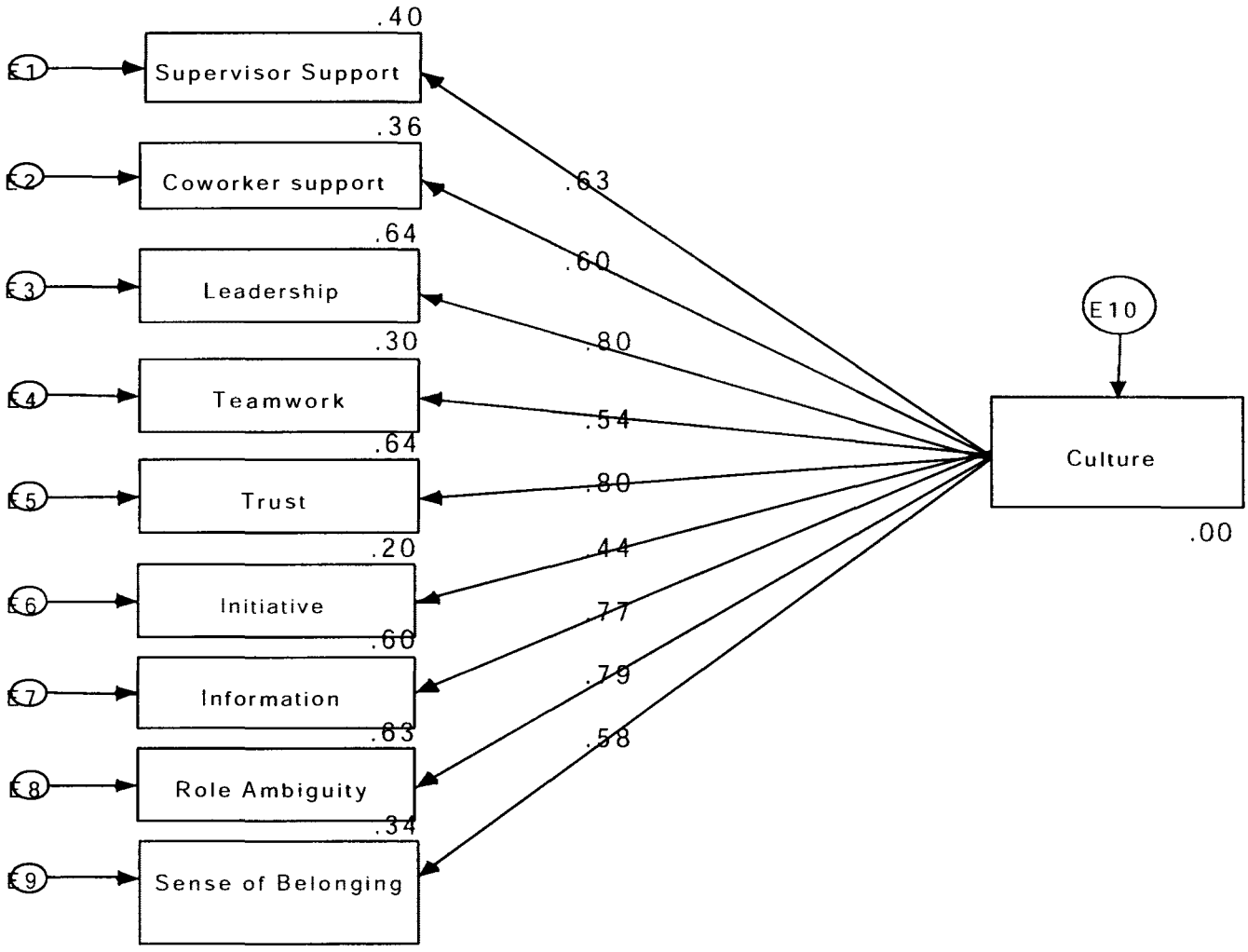

Figure 4.1: Organizational Culture Model Fit Summary. The arrow connecting culture to the factor represents the loading of the factor on culture.

The Goodness of fit indicators for the model all showed acceptable values with NFI showing a value of 0.774, IFI showing a value of 0.793, and CFI having a value of 0.791. Given the abbreviated nature of the organizational culture survey used in this study, it was unclear how well the model would fit the data. From the numbers above, it is clear that while the model does not show an excellent fit it does show the model adequately represents the construct being assessed.

Construct validity focuses on the extent to which data exhibit evidence of convergent validity and discriminate validity. Convergent validity is the extent to which different instruments concur in their measurement of the same construct. As noted above, the scores from these different instruments should be moderately high (Byrne, 1998). Convergent validity is assessed by reviewing the *t* tests for the factor loadings (Anderson & Gerbing, 1988).

Factor loading represents the correlation coefficients between the variables (rows) and factors (columns). Analogous to Pearson's "r", the squared factor loading is the percent of variance in that variable explained by the factor. To determine whether or not a factor loads well on the variable is purely arbitrary, but common social science practice uses a minimum cut-off of 0.3 or 0.35. For sample sized greater than 100 Norman and Streiner (1994) suggest an arbitrary rule-of-thumb in terms loadings as "weak" if less than 0.4, "strong" if more than 0.6, and otherwise as "moderate". Other researchers report that for a sample size of this number, with the stated objective of obtaining a power level of 80% a factor loading of .40 is required (Hair, Anderson, Tatham & Black, 1998). For this study, a factor loading is considered acceptable if it is above 0.40 and high if it is above 0.60. It is important to note however that the interpretation of the factor loading magnitude can vary a great deal. Whether or not a factor loading is considered high is dependent on the context in which it is being used. For instance, a factor loading of 0.45 might be considered "high" for dichotomous items but for Likert scales a 0.6 might be required before the loading is considered "high".

Six of the nine factors used in this study to characterize the organization's culture showed a high factor loading, ranging from 0.60 - 0.80. The other three factors: Teamwork, Initiative, and Sense of Belonging all showed an acceptable factor loading (see *Figure 4.1).*

Demographic Data

A total of 382 questionnaires were distributed. In total, 189 questionnaires were returned, comprising a response rate of 49%. Three responses were eliminated due to excessive missing data. Therefore, the sample size for testing the hypotheses was 186. *Table 4.2* presents the profile of the participants with regard to age, gender, education, employment classification, job function, length of employment, marital status, ethnicity, and personality.

Most of the participants were between the ages of 40 and 59 (66%) and had at least a post-secondary diploma (84%). Of this sample, 71% were male and 29% were female. With regard to length of employment, only 20% of the participants had worked for the company for less than four years and 82% of the people reported to be either married or living with a common law partner. The length of time an individual worked with the company was a function of their anniversary date. Therefore, part years were not included. For example, an employee that had worked for the company for three years and ten months would have been classed as "< 4", not ">3".

Table 4.2: Demographic Characteristics of Participants (N=186)

Characteristic	Frequency	%
Age		
20-29	23	12
30-39	36	19
40-49	73	39
50-59	49	26
> 60	5	3
Gender		
Male	137	71
Female	49	29

Table 4.2: Continued

Characteristic	Frequency	%
Education		
< High School	4	2
High School	25	13
Post Secondary	68	37
University Degree	67	36
Graduate Degree	22	12
Classification		
Management	30	16
Employee	156	84
Job Function		
Supervisor	20	11
Technical	63	34
Operations	35	19
Maintenance	16	9
Support	52	28
Marital Status		
Married	144	77
Common Law	9	5
Single	25	13
Divorced	8	4
Widowed	0	0

Table 4.2: Continued

Characteristic	Frequency	%
Years with Company		
< 4 Years	37	20
> 3 Years	149	80
Ethnicity		
Caucasian	178	96
Other	8	4
Personality		
Type A	70	38
Type B	116	62

The majority of the participants displayed characteristics associated with a Type B personality (62%). Only 4% of the participants reported to be a race other than Caucasian. As a result of the high numbers of participants being Caucasian, race was excluded from further analysis as the responses of individuals other Caucasian would not have had a statistically significant impact on the results of the study because of their low numbers.

Research Question 1: In what ways, if any, do the endogenous constructs analyzed in this study differ according to the demographic characteristics of the population.

To answer this question a one-way analysis of variance was conducted by comparing the mean squares for the various demographic features of the study population against the mean squares of each of the endogenous constructs. If the effects were significant the means were then examined in order to determine the nature of the effect. The results of each ANOVA are presented in the following Tables. The Tables contain "SS" - Sum of Squares, "df" - Degrees of Freedom, "MS" - Mean Square, "F" - F-Ration, and "P-value" - Probability Significance.

The value of concern when assessing whether or not a particular variable has a statistically significant effect on the responses of the participants is the P-value. If the P-value is less than the alpha, then the effect is said to be significant. The alpha, or critical value, used in this analysis was 0.05. In other words, a P-Value of less than 0.05 implies that the means differ more than would be expected by chance alone. Using the P-value to predict differences must however be used with caution and further testing must be done to examine the data more closely.

> " If the sample is small, then the X^2 test will show that the data are not significantly different from quite a wide range of very different theories, while if the sample is large, the X^2 test will show that the data are significantly different from those expected in a given theory even the difference may be so very slight as to be negligible or unimportant on other criteria." (Gulliksen & Tukey, 1958, p. 103)

A post-hoc analysis was performed on any variables that displayed an alpha less than 0.05 to further assess the nature of the significance. In the post-hoc analysis the

means of each of the variables that displayed an alpha less than 0.05 were compared against the standard errors of the sample.

Gender

Table 4.3 presents the data from the ANOVA conducted on the effects of Gender on each of the latent constructs used in the analysis of the hypothesis.

Table 4.3: ANOVA of Gender on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	849.1176	1	849.1176	9.78736	0.002043
Psychological Job Demands	81.59294	1	81.59294	2.174699	0.142006
Psychosomatic Strain	0.001328	1	0.001328	0.051791	0.820229
Sleeping Problems	0.008064	1	0.008064	0.149473	0.699486
Social Support	33.62759	1	33.62759	2.101566	0.148851
Leadership	60.44143	1	60.44143	8.204683	0.004664
Teamwork	6.678047	1	6.678047	3.040076	0.082902
Trust	9.9783	1	9.9783	2.622202	0.107091
Information	148.1913	1	148.1913	15.66241	0.000108
Alignment/ Role Ambiguity	113.187	1	113.187	12.04501	0.000647
Initiative	2.695723	1	2.695723	1.759361	0.186348

Table 4.3: Continued

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Sense of Belonging	4.713698	1	4.713698	3.246741	0.073203

The results of the ANOVA summarized in *Table 4.3* shows that Decision Latitude, Leadership, Information, and Alignment/Role Ambiguity all have P-values of less than 0.05. This implies that the gender of the participant has a significant effect on how he or she perceives each of these constructs. To further investigate the nature of these differences a post-hoc analysis was conducted on each of the four constructs that showed a P-value of less than 0.05. The results of the post-hoc analysis on the factors that showed a significant variance are seen in *Figure 4.2.*

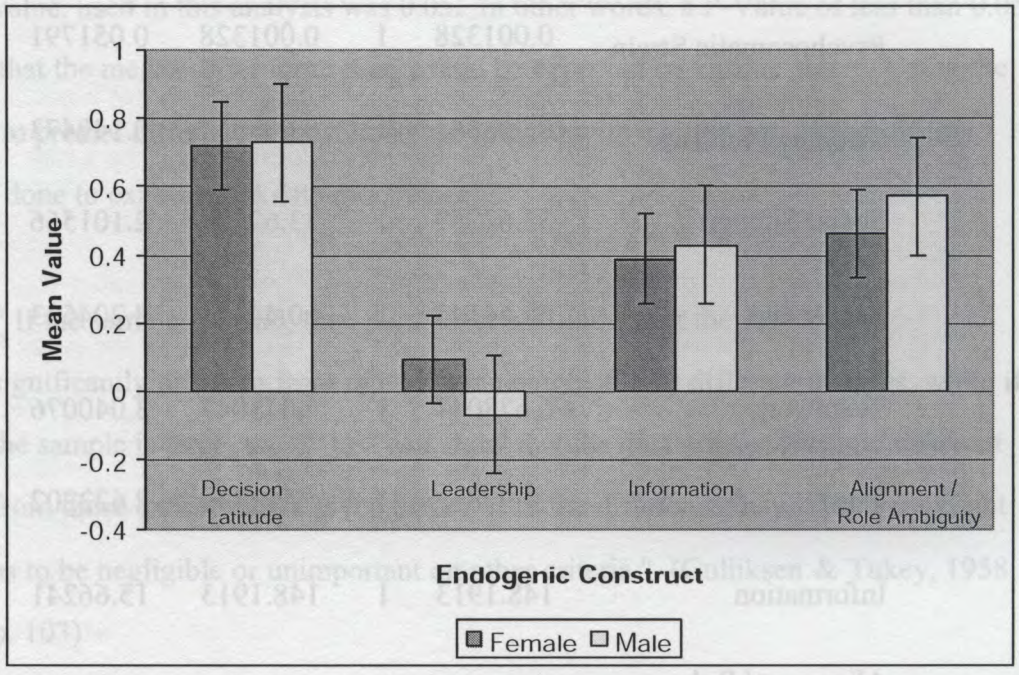

Figure 4.2 Mean values and associated standard errors of the four Endogenous Constructs that were shown to have a significant variance according to Gender.

Figure 4.2 shows us that females reported slightly lower levels for decision latitude, thought more positively of their leaders, believed information did not flow as well in their organization and reported lower levels of alignment/role ambiguity than their male counterparts. Because the participant's gender was shown to have little effect on either psychosomatic strains or sleeping problems the structural model used to assess the work-stress framework did not distinguish between individuals based on their gender. It was however interesting to note that gender had such a profound effect on how the employee perceived their leader.

The fact that males and females perceive things differently is widely accepted (Gherardi, 1994). Even though gender may play a role in a person's perception it is unclear how these perceptual differences influence how a person perceives a stressor or copes with the stressor's negative outcomes. This study noted that there was very little difference between males and females in the magnitude of the stressors they experienced or the psychosomatic strains that they reported. Decision Latitude showed a significant difference in the ANOVA, but as seen in *Figure 4.2* the mean values for Decision Latitude reported by females is well within the standard error of the male responses. Therefore, the significant difference identified in the ANOVA regarding how males and females perceive their Decision Latitude is probably more attributable to the large sample size rather than actual differences in the responses given by the study participants. The fact that males and females reported similar values for Decision Latitude, Psychological Job Demands, and Psychosomatic strains suggest that either:

1. Males and Females use similar coping mechanisms thereby self-reporting similar values for psychosomatic strains, or
2. Males and Females use different coping mechanisms, albeit equally well and thereby report similar values for psychosomatic strains.

The findings of Hamilton and Fagot (1988) indicate that males and females tend to utilize similar coping mechanisms. This finding appears to support the first suggestion while other researchers have reported results that support the second suggestion. In the cases that support the second suggestion, researchers report that males use problem-focused coping mechanisms whereas females are more likely to use emotion-focused methods (Trocki & Orioli, 1994). These conflicting findings on gender influence have made sex a poor predictor of the coping mechanisms used by employees to mitigate against the negative outcomes of stress.

Gender is also a poor indicator for predicting the level of stress reported by individuals. Some studies show higher stress for women (Geller & Hobfoll, 1994) while other studies report higher scores for men (Krausz, Kedem, Tal & Amir, 1992). The one small but consistent sex difference is that males often score higher on cynicism which can help to explain why men generally gave their leaders lower scores when compared to their female counterparts.

As evidenced by the high percentage of male workers (71%) compared to female worker (29%) the oil and gas industry remains very much a male dominated industry. The extent of male domination is also reflected in the low number of management positions held by women. In this study, only two out of the thirty managers that participated in the study were female. The fact that females are not very well represented in the decision-making processes may in part explain why females reported less alignment/role ambiguity than their male counterparts.

Job Classification

Table 4.4 represents the results of the ANOVA on the demographic effect of Job Classification on each of latent constructs used in the analysis of the hypothesis.

Table 4.4: ANOVA of Job Classification on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	237.42	1	237.42	2.635628	0.106203
Psychological Job Demands	140.3211	1	140.3211	3.772071	0.053642
Psychosomatic Strain	2.36E-05	1	2.36E-05	0.000921	0.975818
Sleeping Problems	0.331321	1	0.331321	6.348041	0.012602
Social Support	11.1828	1	11.1828	0.693585	0.406027
Leadership	9.728081	1	9.728081	1.272923	0.260688
Teamwork	0.056617	1	0.056617	0.025359	0.873651
Trust	2.112324	1	2.112324	0.548932	0.459699
Information	50.31468	1	50.31468	5.034727	0.026036
Alignment/Role Ambiguity	10.01092	1	10.01092	1.00534	0.317339
Initiative	1.167246	1	1.167246	0.757694	0.385185
Sense of Belonging	0.709719	1	0.709719	0.481627	0.488561

The results of the ANOVA summarized in *Table 4.4* shows that Sleeping Problems and Information to have P-values of less than 0.05. This implies that the Job Classification (Manager or Employee) of the participant has a significant effect on how he or she perceives each of these constructs. To further investigate the nature of these differences a post-hoc analysis was conducted on each construct that showed a P-value of less than 0.05. The results of the post-hoc analysis on the factors that showed a significant variance are seen in *Figure 4.3.*

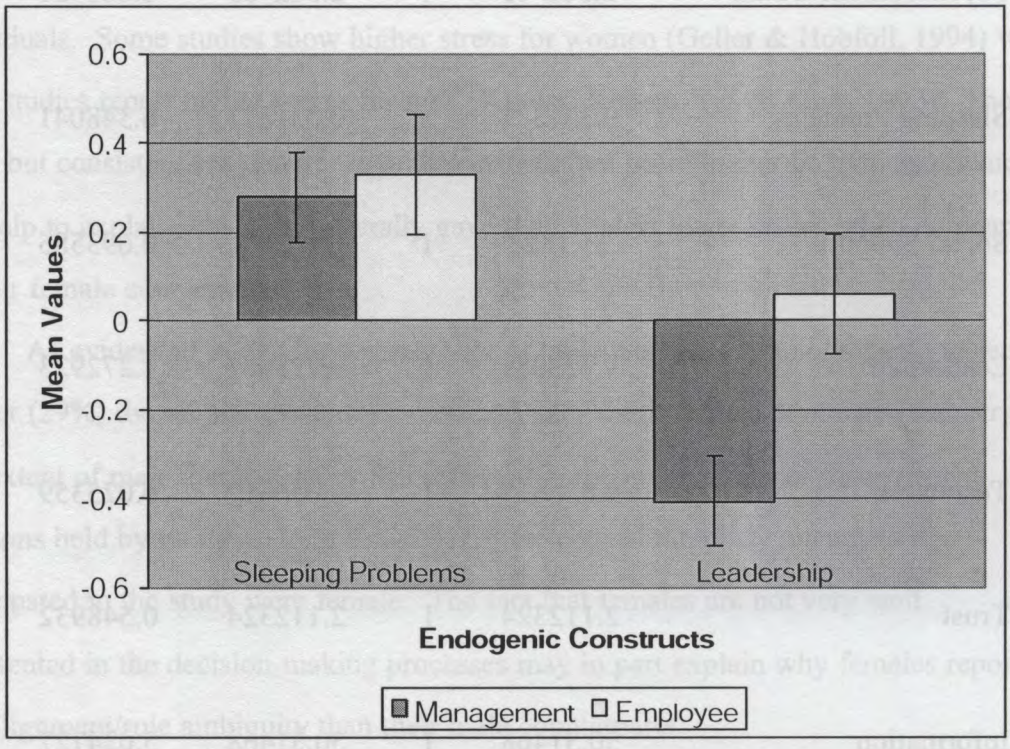

Figure 4.3: Mean values and associated standard errors of the two Endogenous Constructs that were shown to have a significant variance according to Job Classification.

The data in *Figure 4.3* shows that managers generally sleep better and think less of their leadership than their employees. These relationships, although not expected, may in part be explained by the timing of the study. In this particular case, having just undergone a merger, the management in ExxonMobil Canada was faced with a different

reporting structure and a host of new processes and procedures to follow and implement. This was compounded by the fact that the managers in Canada experienced a drastic decrease in their capital and expense authorization levels. All of these factors may have contributed to feelings of conflict because of the ambivalence and incompatibilities between management, business systems, and organizational cultures and goals (Buono & Bowditch, 1989; Schweiger, Ivancevich & Power, 1987). This "merger syndrome" effect may have contributed to the low scores given to leadership by the ExxonMobil Canada management team.

Another contributing factor may have been that the management team in Canada reported to new supervisors in the United States while the employees in Canada still reported to the same supervisor. This may have contributed to employees having greater confidence in their leadership than the management team who were faced with different bosses and a different organizational structure.

The ANOVA also indicated that the quality of sleep varied significantly between employees and managers. As seen in *Figure 4.3* however, the mean values for sleep reported by management had a substantial overlap with the standard error of the employee responses. Therefore, the significant difference identified in the ANOVA regarding the quality of sleep reported by managers and employees is probably more attributable to the large sample size rather than actual differences in the responses given by the study participants.

Work Location

Table 4.5 summarizes the ANOVA regarding the demographic effect of work location i.e. in the field or at the head office in Calgary, on each of latent constructs used in the analysis of the hypothesis.

Table 4.5: ANOVA of work location on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	109.9155	1	109.9155	1.135894	0.288117
Psychological Job Demands	170.2082	1	170.2082	5.175387	0.024229
Psychosomatic Strain	0.001297	1	0.001297	0.051246	0.821197
Sleeping Problems	0.100293	1	0.100293	1.799915	0.181612
Social Support	0.915489	1	0.915489	0.053969	0.81659
Leadership	20.8108	1	20.8108	2.685389	0.103225
Teamwork	0.250938	1	0.250938	0.109335	0.741332
Trust	0.006854	1	0.006854	0.001765	0.966539
Information	100.4594	1	100.4594	10.46027	0.00148
Alignment/ Role Ambiguity	4.530345	1	4.530345	0.426404	0.51469
Initiative	0.200248	1	0.200248	0.15536	0.693987
Sense of Belonging	1.100474	1	1.100474	0.775865	0.379722

The ANOVA on how work location influences the endogenous constructs is summarized in *Table 4.5*. The Table shows both Psychological Job Demands and Information to have P-values of less than 0.05. This implies that where the employee works, in the field or at head office, has a significant effect on how he or she perceives each of these constructs. To further investigate the nature of these differences a post-hoc analysis was conducted on how work location influences psychological job

demands and information. The results of the post-hoc analysis on the factors that showed a significant variance are seen in *Figure 4.4.*

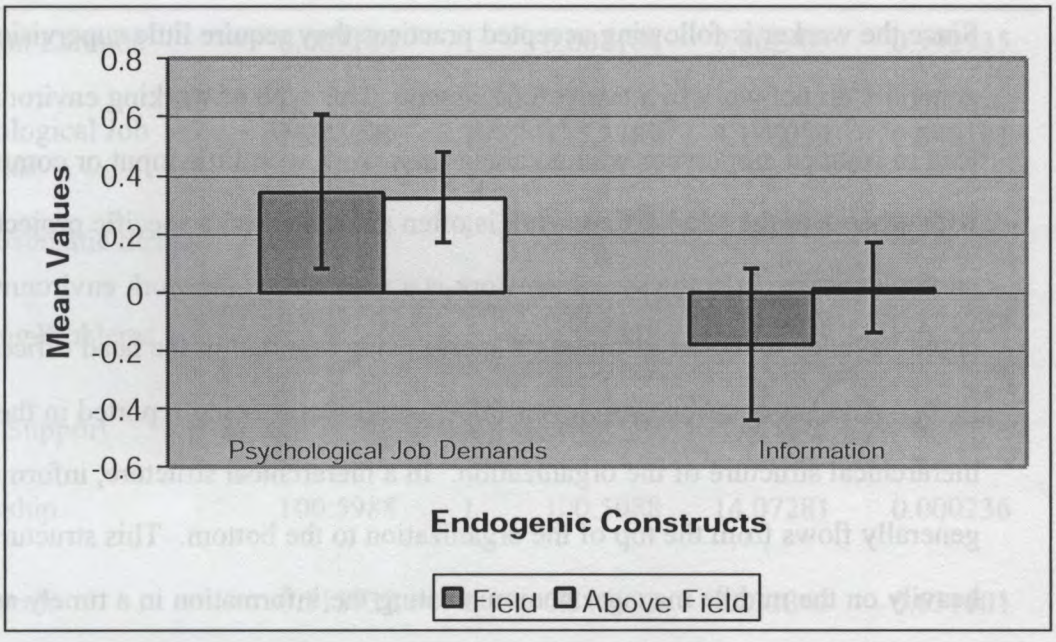

Figure 4.4: Mean values and associated standard errors of the two Endogenous Constructs that were shown to have a significant variance according to Work Location.

The mean values represented in *Figure 4.4* show that employees located at the head office reported lower levels of psychological job demands and felt that information flowed more freely than what employees located the field reported. As seen in the histogram in *Figure 4.4* however, the mean values for psychological job demands reported by employees in the head office were well within the standard error of the psychological job demands of those employees working in the field. Therefore, the significant difference identified in the ANOVA regarding work location is probably more attributable to the large sample size rather than actual differences in the responses given by the study participants. It is interesting to note that there is a significant amount of variance within the reports of psychological job demands by individuals in the field. This variance is can be attributed to many factors, none of which were assessed in the study and is an area for further study.

It is not surprising that workers in the field report lower scores for transfer of information than those working in the head office. Workers in the field are given very specific tasks to perform that are governed by specific industry accepted practices. Since the worker is following accepted practices they require little supervision and generally do not work in a team environment. This type of working environment can lead to isolated employees who go about their work with little input or communication with others. In the head office, work is often associated with specific projects or a particular asset. In both cases, teamwork is a vital part of the work environment. This could have led to higher information scores being reported in the head office.

Another contributor to lower information scores being reported in the field is the hierarchical structure of the organization. In a hierarchical structure, information generally flows from the top of the organization to the bottom. This structure relies heavily on the middle manager communicating the information in a timely and effective manner. When an inevitable break in the flow of communication occurs those at the bottom of the hierarchical structure (field personnel) do not receive the same quality or quantity of information that those at the top of the hierarchical structure (head office personnel). The dilution of information as it flows from personnel in the head office to those in the field can help to explain why field locations believes their work environment is characterized by poor communication.

Education

Table 4.6 summarizes the ANOVA completed on the effects of Education on each of the latent constructs used in the analysis of the hypothesis. The analysis of variance for Education was conducted between those individuals that completed some form of post secondary schooling (eg. two year technical diploma, university degree, etc.) and those who did not continue on with their education past high school.

Table 4.6: ANOVA of Education on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	0.007184	1	0.007184	7.86E-05	0.992935
Psychological Job Demands	155.3789	1	155.3789	4.186059	0.042181
Psychosomatic Strain	0.003131	1	0.003131	0.122133	0.727133
Sleeping Problems	0.065176	1	0.065176	1.215087	0.271767
Social Support	2.5378	1	2.5378	0.156943	0.692446
Leadership	100.5988	1	100.5988	14.07281	0.000236
Teamwork	0.515932	1	0.515932	0.231343	0.631101
Trust	17.31251	1	17.31251	4.597724	0.033327
Information	23.52032	1	23.52032	2.319753	0.129457
Alignment/ Role Ambiguity	54.1531	1	54.1531	5.572542	0.019291
Initiative	1.556228	1	1.556228	1.011582	0.315845
Sense of Belonging	5.138283	1	5.138283	3.544824	0.06131

The ANOVA of the effects of education on the endogenous constructs being examined in this study show that the level of education obtained by the participants had an apparent effect on the psychological job demands experienced by the employee. Level of education also influences how the employee perceives their leadership, the amount of trust the employee feels in their workgroup and how aligned employees are with the organization's goals and objectives. These effects are

demonstrated by the ANOVA summarized in *Table 4.6* where it shows psychological job demands, leadership, trust, and alignment/role ambiguity all having P-values below 0.05. The significant variation seen in these characteristics of the organization's culture were further assessed by analyzing the mean values for each of the constructs that displayed an alpha of less than 0.05.

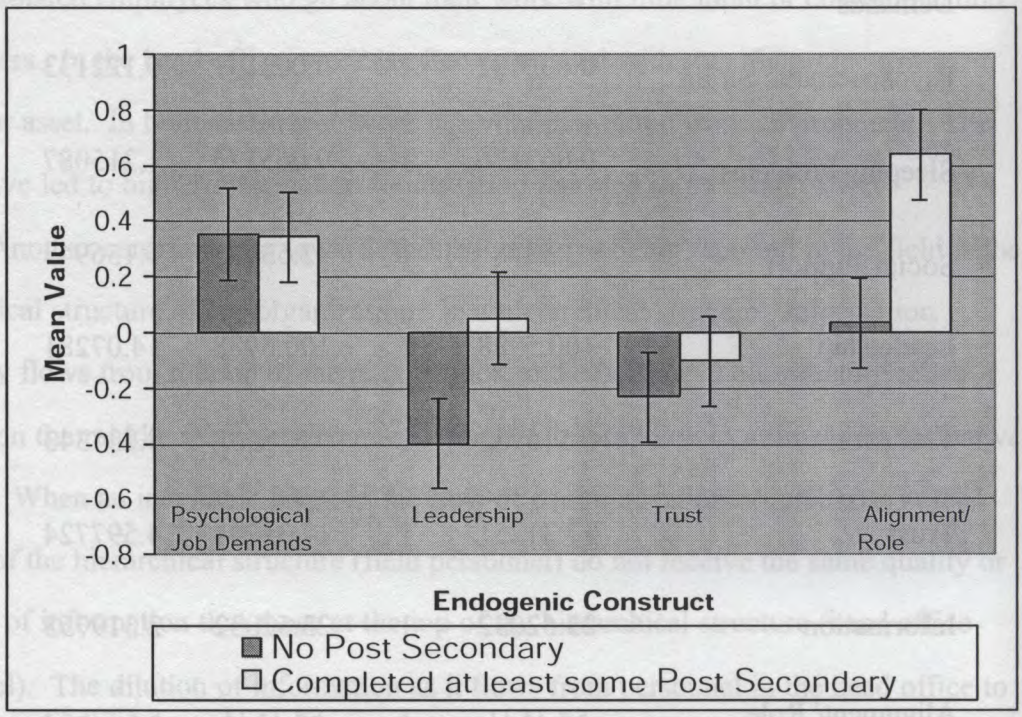

Figure 4.5: Mean values and associated standard errors of the four Endogenous Constructs that were shown to have a significant variance according to level of Education obtained.

The mean values displayed in *Figure 4.5* show that in this study, Education has the greatest influence on how employees perceive their leaders, how well aligned the employee is with the company's goals and objectives, and the level of trust in the organization as perceived by the worker. The small differences between the means for psychological job demands along with the similar error bars suggests the significance of the difference identified in the ANOVA was more a function of sample size than actual differences in study participant responses.

ExxonMobil, being a technology-based corporation places a great deal of emphasis on competency and technological know-how. As a result, they place a high value on employee development and continuous improvement. Individuals that do not hold similar values may find themselves at odds with the company. It can be reasoned that those individuals with only a high school education place less of a value on education than those that went on to complete post-secondary training. Accordingly, those individuals who have completed some form of post-secondary education are likely aligned with the company's philosophy regarding the importance of education. Further analysis of the data reveals that all Managers had at least some form of post-secondary education. Since Managers directly influence the goals and objectives of the organization it is not surprising that those with more education were more aligned with the company's goals and objects. This also helps to explain why those with more education scored their leadership significantly higher than their counterparts with less education. The leadership of the organization all had post- secondary training, as such, they were effectively scoring themselves regarding the metric of leadership, which may have caused a bias in the results. Even though education may have had an influence on how employees rated their leadership it did not significantly influence how the individual perceived their psychological job demands, their decision latitude, or the number of self reported psychosomatic strains. As such, it can be reasoned that education does not act directly to influence the work stress framework but instead acts indirectly by influencing an employee's perception of their leadership and how aligned they are with the organization's goals and values.

Marital Status

Table 4.7 summarizes the ANOVA completed on the effects of Marriage on each of the latent constructs used in the analysis of the hypothesis. The analysis of variance for Marriage was completed on those individuals that were either married or involved in

a common law relationship and those who were single. For the purpose of this study divorced, separated, or widowed individuals that had not remarried were classified as single.

Table 4.7: ANOVA of Marital Status on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	1.147298	1	1.147298	0.012557	0.910899
Psychological Job Demands	34.63287	1	34.63287	0.916834	0.339564
Psychosomatic Strain	0.000537	1	0.000537	0.02095	0.885074
Sleeping Problems	0.131921	1	0.131921	2.476162	0.117302
Social Support	0.221417	1	0.221417	0.013682	0.90701
Leadership	1.031031	1	1.031031	0.134082	0.714658
Teamwork	0.02899	1	0.02899	0.012984	0.909405
Trust	6.148784	1	6.148784	1.607052	0.206509
Information	14.24071	1	14.24071	1.397575	0.238655
Alignment/ Role Ambiguity	15.84916	1	15.84916	1.596728	0.207966
Initiative	1.722883	1	1.722883	1.120572	0.291183
Sense of Belonging	0.463841	1	0.463841	0.314485	0.575623

The results of the ANOVA summarized in *Table 4.7* show none of the latent constructs to have a P-value greater than 0.05 suggesting that marital status does not

have a significant effect on any of the endogenous constructs used in this study. This result was unexpected, as previous studies have shown that marriage has a moderating effect on the levels of job strain reported by employees (Roberts & Levenson, 2002). Other studies have shown that singles (especially men) seem to be more prone to burnout compared with those who are married. In fact, singles seem to experience even higher burn out levels than those individuals who are divorced (Semmer, 1996).

A recent study on the effect of marital and job stress on depressive symptoms in middle aged women with coronary heart disease found that marital stress played a larger role in predicting depressive symptoms than work stress (Piroska, Janszkyb, Leineweberb, Blomb, Wamalac & Orth-Gome′, 2003). Piroska et al. (2003) also suggests that marriage may act as both a moderator and contributor to the amount of stress experienced by an employee. This study did not find any such relationship. This unexpected result can perhaps best be explained by the research design used in this study. The study simply assesses whether or not an employee was married. It did not assess the quality of the relationship between the employees and their spouses or any associated stress caused as a result of this relationship. Instead, the study concentrated on the entire home-work interface. Perhaps, in the case of this study, the buffering effects of marriage are imbedded within the effects we see of the home-work interface on the work stress framework.

Because the analysis of variance indicated that marital status did not significantly impact the latent constructs used in the proposed work stress framework the mean scores for each of the constructs was not assessed any further. It does however raise questions as to why the type of interaction effect of marriage on work stress seen in previous studies was not evident in this study.

Time With Company

Table 4.8 summarizes the Analysis of Variance conducted on the demographic effect of length of time the employee had worked with the company at the time of the study on each of the latent constructs used in the analysis of the hypothesis. The analysis differentiated between those individuals who had worked with the company for more than three years at the time of the study and those that worked for the company for less than four years at the time of the study. Three years was chosen as the dividing point to distinguish between new hires and older hires because of the development program utilized by ExxonMobil Canada.

ExxonMobil Canada places all new employees in a three-year program when they are hired on by the company. This program is designed to build the individual's functional competency. As part of the program a training and development plan is established for each new hire that assists them in achieving their competency milestones. It is expected that after three years each employee will have obtained all of their required "early competency milestones" and are no longer considered new hires.

Table 4.8: ANOVA of length of time employed by the company on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	30.56955	1	30.56955	0.336113	0.562795
Psychological Job Demands	702.203	1	702.203	20.8027	9.3E-06
Psychosomatic Strain	0.051695	1	0.051695	2.026225	0.156307
Sleeping Problems	0.374829	1	0.374829	7.207131	0.007928

Table 4.8: Continued

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Social Support	25.14466	1	25.14466	1.558815	0.213434
Leadership	21.58334	1	21.58334	2.834856	0.093944
Teamwork	9.487015	1	9.487015	4.326808	0.03891
Trust	6.871043	1	6.871043	1.799499	0.181435
Information	7.515828	1	7.515828	0.739277	0.391018
Alignment / Role Ambiguity	9.109621	1	9.109621	0.910476	0.341247
Initiative	2.000844	1	2.000844	1.298175	0.256036
Sense of Belonging	10.18563	1	10.18563	7.190691	0.007998

The results of the ANOVA summarized in *Table 4.8* shows that an employee's length of time employed by the company influences certain constructs used within this study. In particular, a significant relationship, as determined by a P-value of less than 0.05, was noted between time employed by the company and the reported levels of Psychological Job Demands, Sleeping Problems, Teamwork, and Sense of Belonging.

To further investigate the nature of these effects a post-hoc analysis was conducted on the four constructs that showed a P-value of less than 0.05. The results of the post-hoc analysis on the factors that showed a significant variance are seen in *Figure 4.6.*

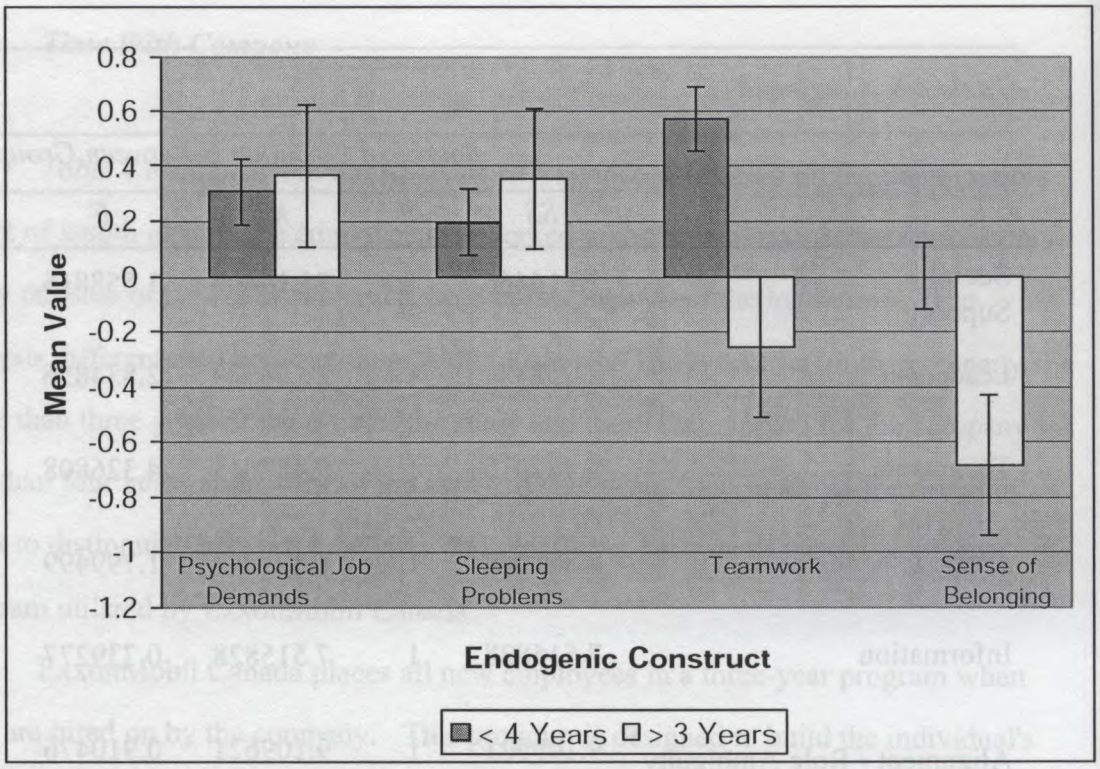

Figure 4.6: Mean values and associated standard errors of the four Endogenous Constructs that were shown to have a significant variance according to the time employed by the company.

The mean values shown in *Figure 4.6* confirm that an employee with less than four years with the company has significantly different responses regarding Sleeping Problems, Teamwork, and Sense of Belonging than their colleagues who had worked with the company for more than three years. Employees with less than four years with the company reported significantly higher values for Sense of Belonging and Teamwork than was reported by those employees who had greater than three years with the company. Additionally, employees with fewer than four years with the company reported significantly fewer sleeping problems than those with more than four years with the company.

The difference in the mean values reported for psychological job demands was within the standard error variance for the population and the significant difference found by the ANOVA was perhaps a function of sample size rather than actual differences in the responses obtained from the two groups.

Of three variables shown to be significantly impacted by the length of time employed with the company, the effect of "merger syndrome" is perhaps most apparent in the results of Sense of Belonging. It is expected that the longer an individual is employed by a company, the greater will be their sense of belonging. The exact opposite occurred in this study and those with longer than three years with the company showed significantly lower levels for sense of belonging. The new hire process utilized by ExxonMobil and the presence of "merger syndrome" can perhaps best explain this apparent discrepancy.

Firstly, ExxonMobil has a very well developed new hire process that is geared towards decreasing the overall time it takes a new hire to become a productive employee. As part of this, they are assigned a "buddy" and introduced into a network with other new employees who often form a bond greatly increasing their Sense of Belonging. This may in part explain why new hires report greater Sense of Belonging.

Secondly, the merger of Exxon and Mobil Oil resulted in a drastic change in organizational philosophy for Mobil Oil Canada employees. Many felt they could not conform to the new philosophies and as a result, felt they did not fit in. Organizational researchers have termed these feeling as "merger syndrome". Other manifestations of "merger syndrome" may have included: loss of personal and organizational identities; feelings of conflict because of ambivalence and incompatibilities between management, business systems, and organizational cultures and goals (Buono & Bowditch, 1989; Schweiger, Ivancevich & Power, 1987). In relation to the findings of this study, Schweiger, et al. (1987) report that the level of merger syndrome experienced by the employee has a direct correlation to their length of employment with the company prior to the merger. These characteristics of merger syndrome may have acted independently or in combination resulting in the lower responses for sense of belonging by those with greater than four years with the company. The characteristics of "merger syndrome" can also provide insight into the drastic differences seen in the levels of reported Teamwork between the two groups. It was expected that the length of employment would be

positively correlated with teamwork. The exact opposite occurred in this study with employees with less than four years with the company reporting the highest values for teamwork. The reason behind this is unclear but it is potentially a function of the merger syndrome experienced by the employees with greater than three years with the company and the new hire process utilized by ExxonMobil Canada, which focuses on teamwork and the establishment of a peer support mechanism.

As would be expected there exits a strong correlation between age and length of time employed by the company (0.74). As a result of this correlation, the effects attributed to length of employment were assessed further to determine if the variances described above were indeed a function of length of employment rather than age. By comparing the results of the analysis of variance of age with that of length of employment we are able to determine if age plays role in the employees responses rather than length of employment. From *Figure 4.7* on page 170 we see that age does not have a significant influence on the self-reports of sleep, teamwork, but does have a significant effect on the employees sense of belonging. This suggests that age may be a contributing factor to the responses seen above for length of employment.

Age

Tables 4.9 - 4.14 summarize the results of the Analysis of Variance completed to determine if age has a significant influence on any of the latent constructs being assessed. Employees were divided into four age categories and an ANOVA was completed to see if there was any significant difference between the responses given by each age category. The following Tables represent the Analysis of Variance completed on each of the different age groups and then a summary of the post-hoc analysis was completed on the mean variances for Age is presented after *Figure 4.7* on page 170.

Table 4.9 summarizes the results of the Analysis of Variance completed on the responses given by employees in their twenties and employees in their thirties.

Table 4.9: ANOVA of the variance between employees in their twenties and those in their thirties on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	86.21497	1	86.21497	0.939391	0.335869
Psychological Job Demands	78.17755	1	78.17755	2.535801	0.115929
Psychosomatic Strain	0.086523	1	0.086523	2.893502	0.093506
Sleeping Problems	0.000135	1	0.000135	0.002594	0.959526
Social Support	14.50068	1	14.50068	1.238286	0.26972
Leadership	0.033333	1	0.033333	0.003404	0.953643
Teamwork	2.44898	1	2.44898	1.548387	0.217646
Trust	0.329252	1	0.329252	0.077891	0.781023
Information	1.2	1	1.2	0.103779	0.748329
Alignment / Role Ambiguity	13.14354	1	13.14354	1.35123	0.249127
Initiative	1.257823	1	1.257823	1.870455	0.175926
Sense of Belonging	4.245578	1	4.245578	2.439572	0.122951

Table 4.9 shows that there are no significant differences identified in how twenty year olds perceive their working environment and how thirty year olds perceive their working environment. This is evidenced by the fact that no P-value below 0.05 was observed in the assessment of the latent constructs for these two groups of participants.

Table 4.10 summarizes the results of the Analysis of Variance completed on the responses given by employees in their twenties and employees in their forties.

Table 4.10: ANOVA of variance between employees in their twenties and those in their forties on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	12.92595	1	12.92595	0.185059	0.668046
Psychological Job Demands	464.3362	1	464.3362	12.46248	0.000645
Psychosomatic Strain	0.020189	1	0.020189	0.720873	0.398015
Sleeping Problems	0.026094	1	0.026094	0.498847	0.481754
Social Support	6.133393	1	6.133393	0.334156	0.564604
Leadership	4.86881	1	4.86881	0.634103	0.427861
Teamwork	12.48595	1	12.48595	5.576406	0.020268
Trust	0.034286	1	0.034286	0.007952	0.929134
Information	24.99429	1	24.99429	2.685083	0.104635
Alignment / Role Ambiguity	3.900952	1	3.900952	0.462156	0.498289
Initiative	0.400238	1	0.400238	0.329371	0.5674
Sense of Belonging	1.06881	1	1.06881	0.735727	0.393215

Table 4.10 shows that a significant difference was observed between the psychological job demands reported by individuals in their twenties and the psychological job demands reported by individuals in their forties. A significant difference was also observed regarding how each of these groups characterized the level trust seen in their organization.

Table 4.11 summarizes the results of the Analysis of Variance completed on the responses given by employees in their twenties and employees in their fifties.

Table 4.11: ANOVA of variance between employees in their twenties and those in their fifties on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	105.6027	1	105.6027	1.109929	0.295827
Psychological Job Demands	611.3633	1	611.3633	22.13525	1.29E-05
Psychosomatic Strain	0.009647	1	0.009647	0.317876	0.574742
Sleeping Problems	0.05373	1	0.05373	0.806954	0.372192
Social Support	33.62759	1	33.62759	2.101566	0.148851
Leadership	1.317007	1	1.317007	0.17268	0.679049
Teamwork	10.8	1	10.8	6.105463	0.015988
Trust	1.910884	1	1.910884	0.539643	0.465107
Information	0.153061	1	0.153061	0.019715	0.88875
Alignment / Role Ambiguity	8.082313	1	8.082313	0.714356	0.400966
Initiative	0.982313	1	0.982313	0.472531	0.494163

Table 4.11: Continued

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Sense of Belonging	0.043537	1	0.043537	0.034766	0.852642

Table 4.11 shows that a significant difference was observed between the psychological job demands reported by individuals in their twenties and the psychological job demands reported by individuals in their fifties. A significant difference was also observed regarding how each of these groups characterized the level teamwork seen in their organization.

Table 4.12 summarizes the results of the analysis of variance completed on the responses given by employees in their twenties and employees in their fifties.

Table 4.12: Analysis of variance between employees in their thirties and employees in their forties on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	48.59474	1	48.59474	0.555836	0.457519
Psychological Job Demands	252.1849	1	252.1849	6.95402	0.009562
Psychosomatic Strain	0.135058	1	0.135058	6.308392	0.013456
Sleeping Problems	0.030815	1	0.030815	0.656116	0.419667
Social Support	71.21416	1	71.21416	4.304212	0.04033
Leadership	9.772011	1	9.772011	1.252305	0.265528
Teamwork	9.476817	1	9.476817	4.15518	0.043884

Table 4.12: Continued

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Trust	0.748583	1	0.748583	0.184196	0.668624
Information	108.3454	1	108.3454	10.19083	0.001836
Alignment / Role Ambiguity	1.845803	1	1.845803	0.200416	0.655258
Initiative	7.108117	1	7.108117	5.945875	0.016338
Sense of Belonging	2.622453	1	2.622453	1.649648	0.201681

Surprisingly, *Table 4.12* shows that there are a number of significant differences in how employees in their thirties and employees in their forties perceive their working environment. A significant difference was observed in how the two groups reported: psychological job demands, psychosomatic strains, social support, teamwork, information, and initiative.

Table 4.13 summarizes the results of the analysis of variance completed on the responses given by employees in their thirties and employees in their fifties.

Table 4.13: ANOVA of variance between employees in their thirties and those in their fifties on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	501.3387	1	501.3387	4.471479	0.037359
Psychological Job Demands	395.8499	1	395.8499	14.1736	0.000304
Psychosomatic Strain	0.134769	1	0.134769	6.334675	0.013695

Table 4.13: Continued

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Sleeping Problems	0.042803	1	0.042803	0.735111	0.393614
Social Support	1.772727	1	1.772727	0.1328	0.716441
Leadership	4.316541	1	4.316541	0.554024	0.458707
Teamwork	8.420746	1	8.420746	4.41852	0.038475
Trust	6.247473	1	6.247473	1.851449	0.17717
Information	13.82918	1	13.82918	1.378001	0.243683
Alignment / Role Ambiguity	0.133795	1	0.133795	0.011374	0.915316
Initiative	8.577143	1	8.577143	4.614078	0.034523
Sense of Belonging	9.530684	1	9.530684	6.48326	0.012671

Once again we see significant differences in how employees in their thirties and another age group perceive their working environment. In the ANOVA completed on employees in their thirties and employees in their fifties it is observed that significant differences occurred in how the two groups reported: decision latitude, psychological job demands, psychosomatic strains, teamwork, initiative, and sense of belonging.

Table 4.14 summarizes the results of the Analysis of Variance completed on the responses given by employees in their forties and employees in their fifties.

Table 4.14: Summary of the ANOVA between employees in their forties and those in their fifties on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	377.2757	1	377.2757	4.480202	0.036321
Psychological Job Demands	37.77529	1	37.77529	1.02952	0.31228
Psychosomatic Strain	0.002653	1	0.002653	0.111815	0.738661
Sleeping Problems	0.012548	1	0.012548	0.234329	0.6292
Social Support	59.84043	1	59.84043	3.42821	0.066509
Leadership	1.785394	1	1.785394	0.280418	0.59739
Teamwork	0.006882	1	0.006882	0.003062	0.955962
Trust	2.937566	1	2.937566	0.829238	0.364289
Information	37.99412	1	37.99412	4.043505	0.046546
Alignment / Role Ambiguity	1.910224	1	1.910224	0.182512	0.669976
Initiative	0.310239	1	0.310239	0.162367	0.687692
Sense of Belonging	2.841878	1	2.841878	2.138944	0.146172

Table 4.14 shows that a significant difference was observed between the decision latitude reported by individuals in their forties and the decision latitude reported by individuals in their fifties. A significant difference was also observed regarding how each of these groups characterized the flow information within their organization.

The previous six Tables all provided data on the significance of age on the latent constructs investigated in this study. The results of the analysis of variance completed on the responses from the various age groups shows that age has a significant influence on how the participants perceive their workplace. The statistically significant differences are summarized in *Figure 4.7.*

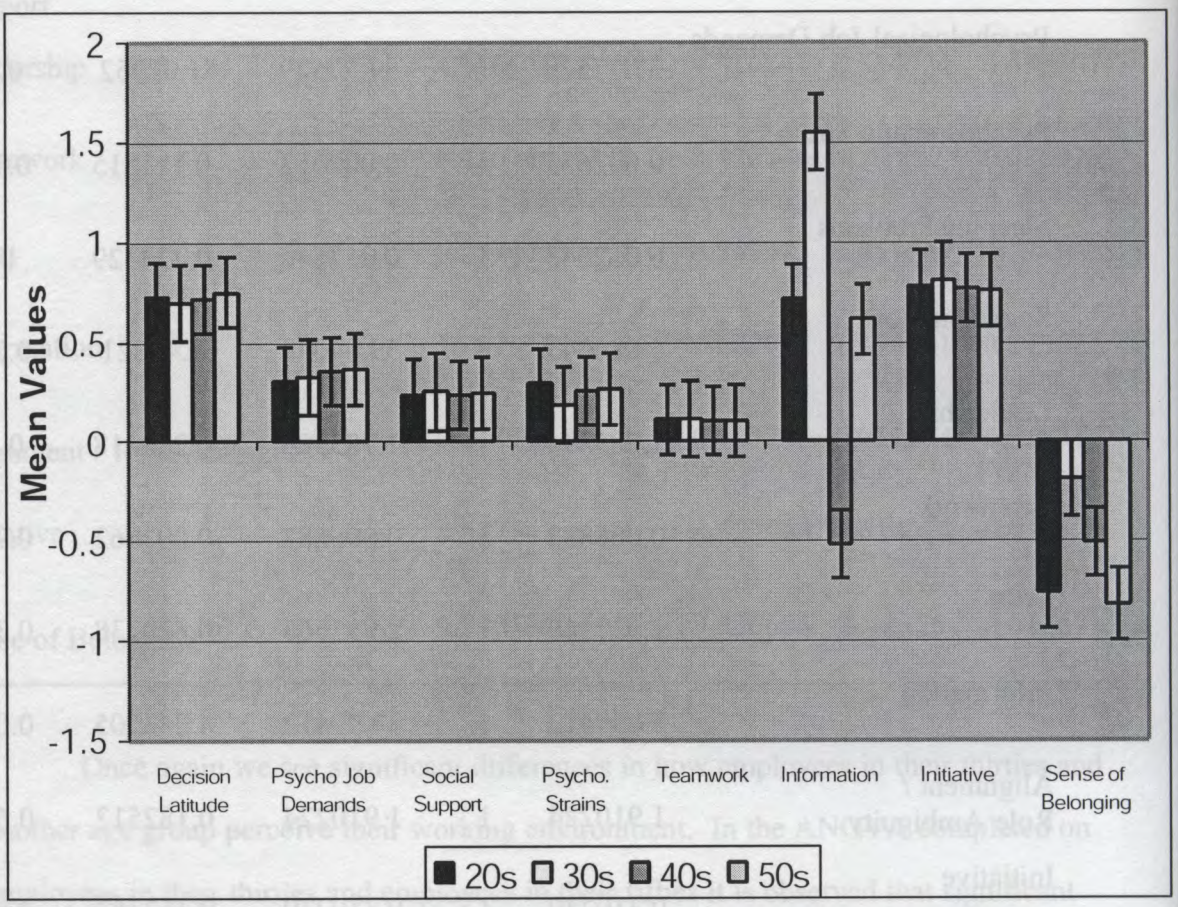

Figure 4.7: Mean values and associated standard errors of the eight endogenous constructs that were shown to have a significant variance according to the age of the participant.

As seen in *Figure 4.7* an individual's age has a significant influence on how individuals perceive the flow of information through their work group and how they respond to questions surrounding their Sense of Belonging. An interesting trend also emerges from the data. By looking at the mean values for each of the age groups it appears that psychological job demands tend to increase with age. In fact, a positive

correlation of 0.31 exists between age and psychological job demands, which is significant at the 0.001 level. There is however less of a correlation between age and decision latitude. These results suggest that as employees get older, their psychological job demands increase but their decision latitude remains relatively unchanged.

In Karasek's (1979) Job Strain Model he predicts that high psychological job demands and low decision latitude result in high levels of strain, which can lead to negative health impacts. Some of these negative health impacts manifest themselves in the form of psychosomatic strains. In this study, older participants reported higher values for psychological job demands and similar scores for decision latitude. According to Karasek's Job Strain Model, older participants of this study should have reported the highest levels of psychosomatic strains. This however was not the case. In fact, there was no observable correlation (0.036) between age and number of reported psychosomatic strains. This finding confirms that Karasek's Job Strain Model is perhaps too simple to effectively characterize the antecedents of work place stress and there are other factors in addition to psychological job demands and decision latitude that have a significant influence on the work stress framework. One of these factors could be related to the sense of belonging experienced by the employee.

Sense of belonging reflects how comfortable individuals feel in their working environment. As such, employees that report their organization instills a high sense of belonging feel they are effectively contributing to their work group and are valued by the organization. It is not surprising that all age groups reported negative values for sense of belonging as it characterizes the general attitude of the employees following the merger.

After the merger of Exxon and Mobil Oil it is a reasonable assumption that the Mobil Oil personnel in Western Canada (the population for this study), experienced a great deal of "merger syndrome". It is hypothesized that the incompatibilities between management styles and the loss of personal and organizational identity caused a drastic decrease in the sense of belonging experienced by employees. Relating to this, the data

suggests that individuals in their thirties experienced less merger syndrome than that of their colleagues. Their comparatively high scores for sense of belonging and low scores for psychosomatic strains provides some justification to support this.

There has always been a great deal of ambiguity in the results reported by researchers on how age influences the level of stress reported by employees. It is, however, consistently reported that younger individuals self-report greater amounts of work stress than older individuals. Even though younger individuals generally report greater amounts of stress, older individuals account for the majority of stress related work claims. California's Worker's Compensation Report (1990) reports that the stress claimant's average age at the time of stress injury is 40 years of age. This can be compared to average age for all other disabled workers, which is 34 years of age. Although workers under the age of 25 account for nearly a quarter of all disabling work injuries, they account for only 5% of stress claims. If younger individuals are reporting greater amounts of stress, but are accounting for less than 5% of stress related claims than either the levels of stress reported by older individuals is inaccurate thereby biasing the results of previous research or younger individuals have better stress coping mechanisms at their disposal.

The findings presented above clearly indicate that individuals in their thirties report significantly few psychosomatic strains than their older counter-parts. Thirty-year-old participants also perceived information to be communicated much more effectively in the organization that any of the other age groups. The fact that individuals in their thirties reported higher numbers for sense of belonging and information and lower values for psychosomatic strains suggests that thirty year olds perceive their working environment differently than individuals in other age groups. The epidemiology of these differences is unclear, but the evidence presented in this study strongly supports the hypothesis that it is heavily influenced by the effectiveness of the coping mechanisms utilized by the individual.

There are more subtle differences in the relationships of both environmental and personal characteristics with psychosomatic measures that the questionnaire used in this study was unable to detect. A thorough analysis using complex techniques of pattern matching is warranted. However, where established relationships are acknowledged it is recommended that careful attention be placed on environmental and personal factors and improvements that can be implemented. A more thorough analysis of these interactions is warranted but should be taken up with some caution as most literature on this topic suggests sociodemographic profiles and other personal attributes as related to the work stress framework is ambiguous and difficult to characterize.

The inconsistencies with the literature demonstrated by the relationships described above, coupled with the seemingly inconsistent relationship between age and psychological job demands to psychosomatic measures, provide ample opportunity for further study.

Personality

Research Question 2: In what ways, if any, do the endogenous constructs analyzed in this study differ according to the personality of each of its participants.

To answer this question a one-way analysis of variance was performed comparing the mean squares of personality types A and B against the mean squares of each of the endogenous constructs. As with Research Question 1, an alpha of 0.05 was utilized to determine if the observed variance was significant or not. *Table 4.15* summarizes the effect of personality on each of the latent constructs used in the characterization of the work stress framework.

Table 4.15: ANOVA of Personality (A&B) on associated latent constructs.

Latent Construct	*Source of Variation is Between Groups*				
	SS	*df*	*MS*	*F*	*P-value*
Decision Latitude	2.440807	1	2.440807	0.026717	0.870341
Psychological Job Demands	6.094838	1	6.094838	0.160689	0.688988
Psychosomatic Strain	0.14951	1	0.14951	6.018249	0.01509
Sleeping Problems	0.020613	1	0.020613	0.382556	0.537003
Social Support	28.91153	1	28.91153	1.803945	0.180891
Leadership	35.72999	1	35.72999	4.763363	0.030338
Teamwork	3.181355	1	3.181355	1.43584	0.232355
Trust	55.7734	1	55.7734	15.68243	0.000107
Information	28.02587	1	28.02587	2.770817	0.097699
Alignment / Role Ambiguity	81.46119	1	81.46119	8.512647	0.003966
Initiative	0.065282	1	0.065282	0.042212	0.837443
Sense of Belonging	0.065282	1	0.065282	0.042212	0.837443

From the ANOVA on the effects of personality on the endogenous constructs used in this study we find that the personality of the participant has a significant influence on the number of reported psychosomatic strains, the perception the individual has of their leadership, perceived level of trust, and the individual's level of alignment/role ambiguity. The significant effects of personality, as identified in the

analysis of variance, were assessed further by looking at the mean values for each of the constructs and is seen in *Figure 4.8.*.

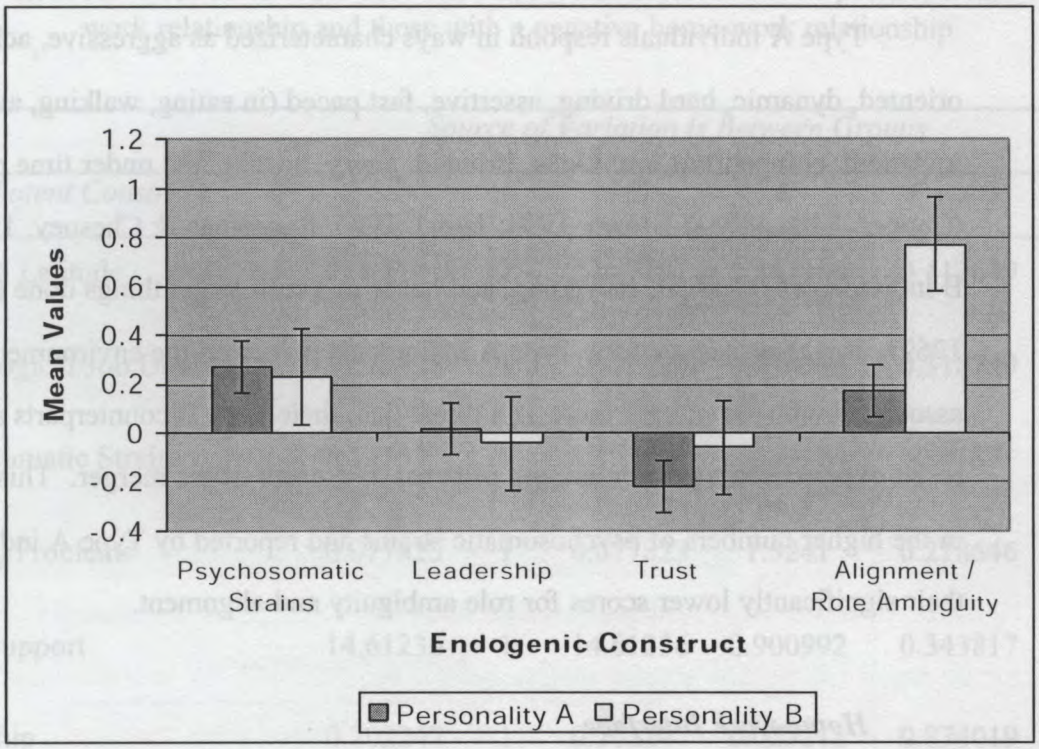

Figure 4.8: The mean values of four Endogenous Constructs reported according to personality.

Figure 4.8 shows us that individuals with a Type A personality reported greater psychosomatic strains, had a more positive view of leadership, felt they worked in a comparatively less trusting environment, and overall thought they were less aligned with the company's objectives and goals than their Type B counterparts. Because the participant's personality is shown to have some influence on reported levels of psychosomatic strains, the stress framework structural model was investigated separately for Type A personalities and those considered having a Type B personality.

Surprisingly, the data shows that personality has the greatest influence on how an individual perceives their alignment / role ambiguity with the company. Individuals

with a Type B personality reported significantly higher numbers for alignment and role ambiguity than their Type A counterparts. Type A/B behavior pattern is a behavioural trait referring to how one responds to environmental challenges and threats (Ivancevich & Matteson, 1984).

Type A individuals respond in ways characterized as aggressive, achievement oriented, dynamic, hard driving, assertive, fast paced (in eating, walking, and talking), impatient, competitive, ambitious, irritated, angry, hostile, and under time pressures (Cooper, Kirkcaldy & Brown, 1994; Jamal, 1990; Rosenman & Chesney, 1985). Type B individuals are casual, easygoing, and never in a rush to get things done (Bortner, 1969). It is theorized that the Type A individuals perceived the environmental changes associated with the merger more as a threat than their Type B counterparts and as a result experienced a greater amount of stress as a result of the merger. This is reflected in the higher numbers of psychosomatic strains and reported by Type A individuals and their significantly lower scores for role ambiguity and alignment.

Home-work Interface

Research Question 3: In what ways, if any, do the endogenous constructs analyzed in this study differ according to the non-work stressors experienced by each of its participants.

To answer this question a one-way analysis of variance was again performed. In this analysis the entire sample was divided into two groups: low non-work stress and high non-work stress. The mean score of the summed non-work stressors was used as a dividing point to classify each of the groups. The constructs of the low non-work stress group was then compared with the constructs of the high non-work stress group using ANOVA. As with Research Questions 1 & 2, an alpha of 0.05 was utilized to determine

if the variance between the two groups was significant or not. *Table 4.16* summarizes the results of the ANOVA.

Table 4.16: ANOVA of variance between employees assessed to have positive home-work relationship and those with a negative home-work relationship.

	Source of Variation is Between Groups				
Latent Construct	*SS*	*df*	*MS*	*F*	*P-value*
Decision Latitude	224.7191	1	224.7191	2.541986	0.112649
Psychological Job Demands	37.77528	1	37.77528	0.999564	0.318789
Psychosomatic Strain	0.135537	1	0.135537	5.633324	0.0187
Sleeping Problems	0.077823	1	0.077823	1.5241	0.218646
Social Support	14.61236	1	14.61236	0.900992	0.343817
Leadership	0.202247	1	0.202247	0.025213	0.874019
Teamwork	23.01124	1	23.01124	10.67298	0.001307
Trust	0.140449	1	0.140449	0.035702	0.850351
Information	17.61798	1	17.61798	1.742508	0.188536
Alignment / Role Ambiguity	0.140449	1	0.140449	0.013746	0.906801
Initiative	2.97191	1	2.97191	1.891435	0.170788
Sense of Belonging	0.679775	1	0.679775	0.476165	0.491074

The results of the ANOVA for the responses from employees that reported positive home-work relationships had a statistically significant influence on the number of psychosomatic strains reported by the employee and the level of teamwork found in the participant's workplace. The statistically significant differences are summarized in *Figure 4.9.*

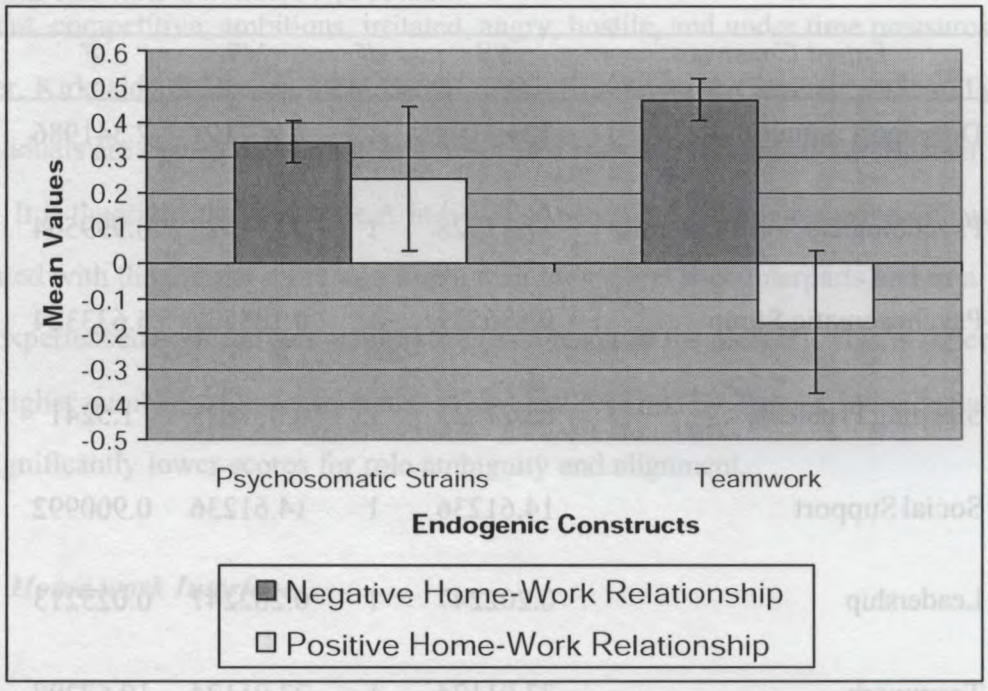

Figure 4.9: The mean values of two endogenous constructs as related to the home-work relationship reported by the participant.

As seen in *Figure 4.9* those who reported more negative home-work relationships also reported higher levels of psychosomatic strains. In this study self-reported psychosomatic strain is used as an indicator of the individual's physiological responses to stress. The differences seen in *Figure 4.9* in the mean values for psychosomatic strain suggests that the home-work interface plays a significant role in predicting stress levels. As a result, the home-work interface was added as an endogenous construct within work-stress framework and assessed with the use of structural equation modeling.

Organizational Culture

Research Question 4: How does organizational culture, as perceived by the worker affect the work stress framework, psychosomatic strains, and quality of sleep?

The primary purpose of this study is to determine the effect of organizational culture on the proposed work stress framework. The first three research questions assess the influence of a number of extraneous variables in an attempt to reduce the measurement error associated with the survey instrument used in this study. Research question number four, on the other hand, addresses the core of the problem in trying to determine the role of organizational culture in the work stress framework. To answer this question structural equation modeling (SEM) using AMOS version 5.0 is used.

Figure 4.10 on page 181 examines the relationships, represented by path diagrams, between job demands, job control, organizational culture, the home-work interface, psychosomatic strains and sleeping problems. A number of tests were performed on the model to see how well the data supported the model. The results of these tests are shown in *Table 4.17*. All of the fit indices summarized in *Table 4.17* show an excellent fit, meaning the proposed model was supported well by the data. This strong overall model fit indicates that both the measurement part of the model and the structure part of the model generally fit the data.

Table 4.17: Goodness of Fit measurements for the SEM representing the proposed work stress framework:

Fit Index	Value
CMIN/DF	0.086
GFI	0.991

Table 4.17 Continued

Fit Index	Value
NFI	0.961
RFI	0.803
TLI	1.039
RMSEA	0.000

The chi-square for the proposed work stress model is 5.205. Although the chi-square statistic is a global test of a model's ability to reproduce the sample variance/covariance matrix, it is sensitive to sample size and the complexity of the model (Bollen, 1989). Thus, the chi-square statistic must be interpreted with caution (Joreskog & Sorbom, 1996). When dealing with large sample sizes and complex models the chi-square is often used with the degrees of freedom in terms of a ratio when assessing fit. In this case, the chi-square to the degrees of freedom ratio was 1.15. Marsh, Balla and McDonald (1988) suggest that the chi-square to degrees of freedom ratios up to the value of three are indicative of acceptable fit models, suggesting that the proposed model has an acceptable fit to the data.

Concerning parameter estimates, Organizational Culture displayed a significant relationships with Psychosomatic Strains and Decision Latitude (*Figure 4.10*). Organizational Culture had a strong negative relationship with self-reported psychosomatic strains, which means the more positive the Organizational Culture the fewer reported cases of Psychosomatic Strains. One unit decrease of Organizational Culture drove a 0.536 increase in self-reported levels of Psychosomatic Strains. In fact, Organizational Culture had a greater impact on the reported Psychosomatic Strains than did the combined impacts of Decision Latitude (-0.145) and Psychological Job Demands (.094). This result confirms the importance of Organizational Culture in the work stress framework and provides evidence to suggest that the Culture of the Organization may be

a more important predictor of stress than either Decision Latitude or Psychological Job Demands.

The proposed work stress framework represented by the path diagrams in *Figure 4.10* hypothesizes that job demands and job control influence the reported levels of Psychosomatic Strain. The results, however show no significant relationship between job demands and job control on psychosomatic strains as evidenced by the low factor loading displayed in the model shown in *Figure 4.10.*

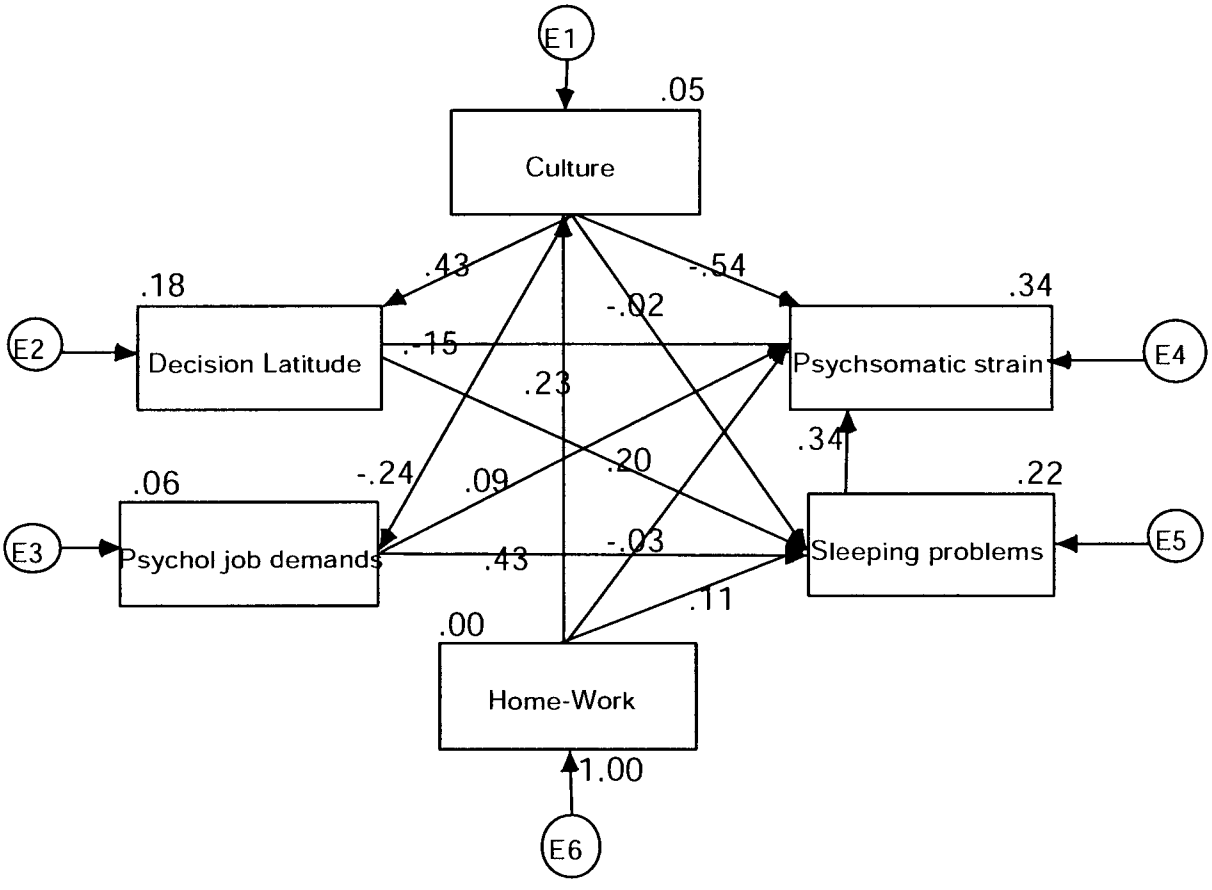

Figure 4.10: Structural Model of the Work-Stress Framework for Personality Type "A" participants showing standardized regression weights.

As expected, there is a strong relationship between psychological job demands and sleeping problems. An increase in psychological job demands corresponds to a factor loading of 0.431 on sleeping problems. Interestingly, although the psychological job demands has a direct influence on sleeping problems, it does not have a corresponding effect on psychosomatic strains. It is only when high psychological job demands are associated with low decision latitude that we see an effect on the levels of reported psychosomatic strains. This finding supports Karasek's (1979) Job Strain Model by providing evidence to support that job strain is a factor of an individual's decision latitude and psychological job demands. Karasek (1979) hypothesizes that job demands are not in themselves harmful, but when combined with low employee control, these demands can lead to negative outcomes such as psychosomatic strains as demonstrated in *Table 4.18*.

Table 4.18 summarizes the results of the two sample t-test used to compare the number of psychosomatic strains reported by those individuals in high strain jobs (low decision latitude - high psychological job demand) and those in low strain jobs (high decision latitude - low psychological job demands).

Table 4.18: Results of the two sample t-Test for psychosomatic strains between those employees in low strain jobs and those employees in high strain jobs.

	Low Strain Job	*High Strain Job*
Mean	0.218474359	0.275798611
Variance	0.026992339	0.021091619
Observations	52	48
Hypothesized Mean Difference	0	
Df	98	
t Stat	-1.851586947	

Table 4.18 Continued

	Low Strain Job	*High Strain Job*
P(T<=t) one-tail	0.033548054	
t Critical one-tail	1.660550879	
P(T<=t) two-tail	0.067096107	
t Critical two-tail	1.984467417	

Utilizing an alpha at the 0.05 level the results of the t-test indicate that individuals in low strain jobs report statistically fewer psychosomatic strains than individuals in high strain jobs as indicated by the p-value of 0.03. This supports the findings of Karasek (1979) who found that individuals in high strain jobs report greater psychosomatic strains than those in employees working in low strain jobs. Individuals reportedly in high strain Jobs were then assessed according to the reported organizational culture of their workplace.

Table 4.19: Results of the two-sample t-Test for psychosomatic strains of employees in high strain jobs that reported a restricted culture and those that reported an engaged culture.

	Restricted Culture	*Engaged Culture*
Mean	0.298676471	0.220238095
Variance	0.02297819	0.013231753
Observations	34	14
Hypothesized Mean Difference	0	
Df	32	
t Stat	1.948243355	
P(T<=t) one-tail	0.030100843	

Table 4.19 Continued

	Restricted Culture	*Engaged Culture*
t Critical one-tail	1.693888407	
P(T<=t) two-tail	0.060201686	
t Critical two-tail	2.036931619	

Table 4.19 shows us that when utilizing an alpha of 0.05, the reported levels of psychosomatic strains are statistically higher for those individuals who work in an atmosphere characterized by a restricted organizational culture. The t-test shows a p-value of 0.030 which is lower that the alpha of 0.05. This result strengthens the premise that an organization's culture plays an important role in the work stress framework and is an important factor in predicting employee stress.

These findings suggest that organizational culture acts as a buffer against the negative psychosomatic attributes associated with high strain jobs. Of the 48 individuals in reportedly high strain jobs only 14 of those individuals reported that their culture was engaged. This finding corresponds to the strong relationship that we see between culture and decision latitude (0.427) shown in *Figure 4.10.*

As described previously in this chapter, a multi-group analysis was conducted on the work-stress framework as a result of the strong influence personality has on the reported levels of psychosomatic strains. The standardized regression weights of the structural equation model for the Work-Stress framework of Type "B" personalities is shown in *Figure 4.11.*

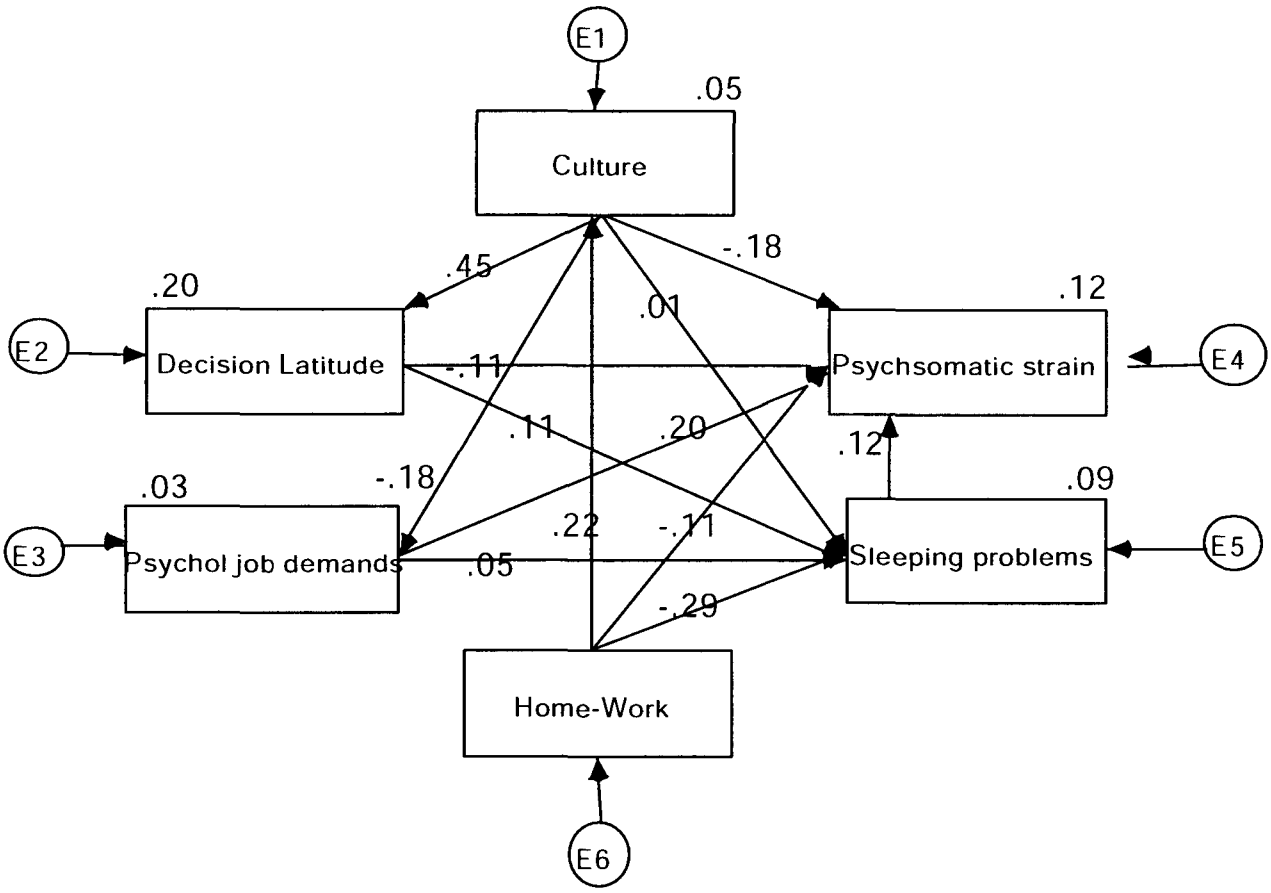

Figure 4.11: Structural Model of the Work-Stress Framework for Personality Type "B" participants showing standardized regression weights.

The structural equation model of the work stress framework for Type B personalities shows that the organization's culture has little influence on the number of reported psychosomatic strains. This suggests that an Organization's Culture plays a much greater role in buffering the negative outcomes of stress for individuals with a Type A personality than it does for those with a Type B personality. Possibly, individuals with a Type B personality were able to successfully buffer against the harmful effects of stress by using internal coping mechanisms and did not have to rely on their external environment to help them cope with the stress of the work place. This

justification is aligned with the previous findings that show personality does not significantly alter the type or the level of stressor experienced by the individual. Type B personalities should have reported similar levels of strain, but as previously shown they did not. It is therefore hypothesized that individuals with a Type B personality may have utilized internal coping mechanisms and were successful in coping with the work stressors thereby negating the beneficial influences associated with working in an engaged organizational culture.

The multi-group analysis of the work stress framework provides evidence that a person's personality plays a very key role in the experience of stress in the work place. From the analysis of variance completed in answering research question #2 we see that Type B personalities report statistically fewer psychosomatic strains than those participants with a Type A personality. There was however no statistical difference between the two groups regarding the levels of psychological job demands, and limited differences between the response rates for decision latitude. In addition, as seen in the Analysis of Variance (*Table 4.20)*, there is no statistical difference between the two groups in how they classified their organization's culture.

Table 4.20: ANOVA of how Type "A" and Type "B" personalities classified the culture of their organization with an alpha of 0.05.

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*
Between Groups	100.1566	1	100.1566	0.554359	0.457492

The fact that personality has little influence on how the participants perceived their work environments yet had a significant influence on the number of reported psychosomatic strains provides evidence that a person's personality plays a large role in buffering against the negative outcomes of stress. It suggests that a person's personality does not necessarily alter the individual's perception of the stressor, but instead alters the

coping mechanisms utilized by the person to mitigate against the impacts of the stressor itself.

Organizational Culture Characteristics

Research Question 5: What characteristics of organizational culture are closely related to the job stress framework, psychosomatic strains, and sleeping problems?

The research question posed above attempts to determine which aspects of an organization's culture most heavily influence the work-stress framework. By determining which characteristics of an organization's culture have the greatest loading in the structural model of work stress, a directed approach to stress reduction can be developed. The path diagram shown in *Figure 4.12* shows each of the endogenous variables used to characterize the organizational culture of ExxonMobil Canada shortly after the merger of the two companies. The influence of each of these variables on the work stress framework is represented by its factor loading as seen in *Figure 4.12.*

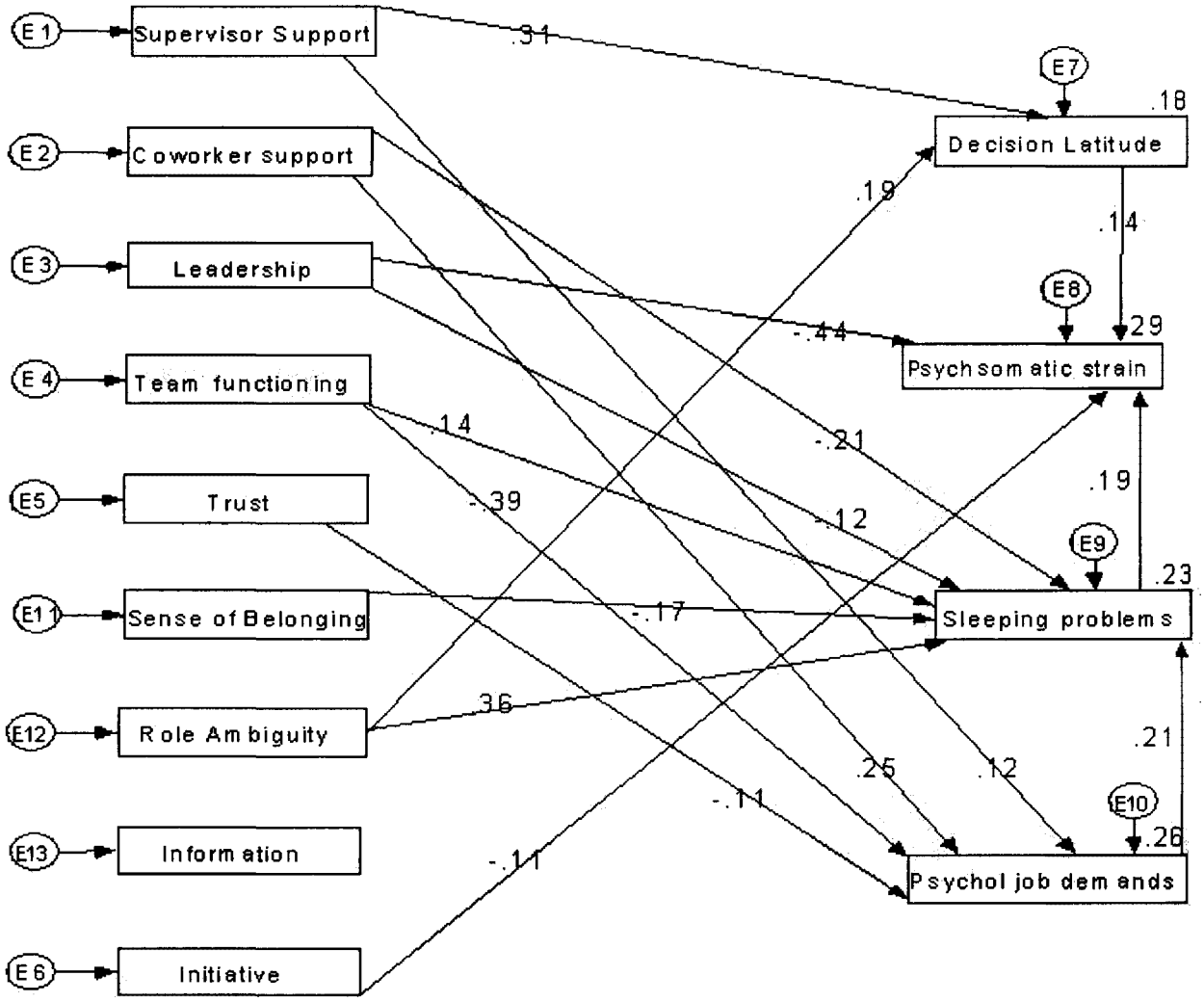

Figure 4.12: Structural Equation Model of the Work-Stress framework showing the regression weights of each of the endogenous constructs for organizational culture
Note: all pathways and regression weights are found in *Appendix A, Table A1.* For the purpose of this figure, all pathways with regression weights less than the absolute value of 0.1 were deleted to highlight those pathways showing greater significance.

From *Figure 4.12*, we see that leadership has the greatest loading on the number of reported psychosomatic strains. All other aspects of the organization's culture had little significance on the number of reported psychosomatic strains. This result provides evidence that in terms of mitigating against the negative outcomes of stress, leadership

plays a very key role. These results support the findings of Evans, (2003) who reports that the management styles exhibited by department heads are a significant factor in postulating the levels of stress reported by teachers.

To expand on this relationship further a correlation matrix was developed and is shown in *Table 4.21*. The correlation matrix shows that reported psychosomatic strain has the greatest correlation with the type of leadership reported by the employees. Although these findings point towards leadership as being a key predictor of work place stress it has to be noted that the error variance is quite large for psychosomatic strains and that the model only accounted for 0.34 of the total expected variance. This suggests that there are other factors influencing employee psychosomatic strains not accounted for in the proposed model. So far, this paper has only looked at organizational culture as a means to buffer against the negative outcomes of stress. It must also be considered that organizational culture may not only function as a buffer to stress, but also act as a psychosocial or bioecological stressor as well.

As is often the case, too much or too little of a stimulus results in a sub-optimal response. The same holds true with psychological and physiological responses. For example, it is well know that exercise in moderation increases a person's overall level of fitness, but it is equally well known that too much exercise can result in over-training and not enough exercise can lead to obesity, both of which result in a lower level of fitness. The same can be said for the endogenous constructs used in this study. Each construct has the ability to act as both a stressor and a buffer of stress depending on the personality of the individual and the framework in which the construct manifests itself.

Table 4.21: Correlation of endogenous constructs used in the study.

	Decision Latitude	*Psychol job demands*	*Supervisor Support*	*Coworker Support*	*Home*	*Psychsomatic strain*	*Sleeping problems*	*Leadership*	*Team*	*Trust*	*Initiative*	*Information*	*Role Ambiguity*	*Sense of Belonging*	*Culture*
Decision Latitude	1.00														
Psychol Job Demands	-0.08	1.00													
Supervisor Support	0.42	0.02	1.00												
Coworker Support	0.25	-0.01	0.46	1.00											
Home	0.13	-0.08	0.17	0.34	1.00										
Psychsomatic Strain	-0.01	0.20	-0.17	-0.20	-0.14	1.00									
Sleeping Problems	0.09	0.17	0.04	-0.10	-0.18	0.24	1.00								
Leadership	0.34	-0.20	0.42	0.29	0.09	-0.44	-0.05	1.00							
Team	0.15	-0.30	0.31	0.60	0.39	-0.24	-0.02	0.33	1.00						
Trust	0.33	-0.21	0.38	0.31	0.03	-0.32	-0.03	0.76	0.31	1.00					
Initiative	0.21	-0.10	0.16	0.22	0.12	-0.23	-0.02	0.31	0.20	0.31	1.00				
Information	0.32	-0.13	0.39	0.35	0.23	-0.26	-0.01	0.54	0.27	0.54	0.35	1.00			
Role Ambiguity	0.37	-0.16	0.37	0.31	0.00	-0.17	0.16	0.57	0.31	0.62	0.31	0.58	1.00		
Sense of Belonging	0.17	-0.16	0.24	0.27	0.00	-0.23	-0.12	0.45	0.27	0.55	0.18	0.35	0.46	1.00	
Culture	0.46	-0.17	0.63	0.62	0.21	-0.33	0.00	0.77	0.54	0.77	0.34	0.75	0.76	0.59	1.00

Major Findings

From a total population of 382, surveys were received from 189 people for a return rate of 49%. Of the 189 surveys returned, 180 were returned with complete information for a completion rate of 95%. Of the nine questionnaires that had missing data, six were deemed as usable within the study by using Maximum Likelihood Estimation to fill in missing data. This resulted in an effective sample of size of 186.

The Analysis of Variance completed on each of the demographic variables assessed in this study shows that certain demographic characteristics have a significant influence within the work-stress framework. This finding reconfirms the complexity of stress response processes and the need for further research into this area. Stress is a personal phenomenon and our responses to it can vary a great deal according to the work situation. It is therefore not surprising that this study showed demographics to have some influence in the work-stress framework. *Table 4.22* highlights which components of the work-stress framework are most heavily influenced by the demographic characteristics of the participants.

The findings associated with each of the five Research Questions are as follows.

Finding One: Certain Demographic characteristics have a significant influence on an employee's perception of stress.

Certain demographic characteristics are shown to have a significant influence within the work-stress framework and have to be accounted for when investigating the antecedents of work place stress.

Table 4.22: Summary of the results for the Analysis of Variance completed on the demographic variables of participants as related to the work stress framework. Statistically significant impacts at an alpha of 0.05 are indicated by a checkmark.

Variable	Decision Latitude	Psychological job demands	Psychosomatic Strains	Sleeping Problems	Social Support	Leadership	Teamwork	Trust	Initiative	Information	Role Ambiguity	Sense of Belonging
Age	✓	✓	✓		✓		✓		✓	✓		✓
Education		✓				✓		✓			✓	
Classification				✓		✓						
Time on Job		✓		✓				✓				
Gender	✓					✓				✓	✓	
Work Location	✓									✓		
Marital Status												

From *Table 4.22* we see that the demographic variables assessed in this study play a key role in the work stress framework. Age appears to have the greatest influence on the work-stress framework followed by Education and Gender. This supports the finding of Cohen, Schwartz, Bromet and Parkinson (1991) who regarded age as a significant factor that confounds the effect of stressors on employee health status. Although this study shows that Gender and Education play an important role within the work stress framework, neither of these demographic features have a significant impact on the level of psychosomatic strain experienced by the employee.

This finding suggests that gender and education play a role in how the individual interprets and responds to their working environment but does not necessarily impact the

level of stress experienced the individual. Ptacek, Smith & Dodge, (1994) reported similar findings when they discovered that males and females exhibited similar stress levels when exposed to the same stressful event, but found that males and females employed different coping mechanisms. These results also support the finding of Greenglass (1995) who, reported there were no gender differences in levels of reported stress when controlling for occupation and position.

Surprisingly, marital status of the participants in this study did not have a significant influence on any of the endogenous variables used to characterize the work-stress framework. While the results of the Analysis of Variance shows that many of the demographic effects are significant, further analysis suggests that many of these effects may be of little theoretical significance due to the small differences seen in the mean values when compared to the error variance for each response category.

Finding Two: Personality plays a key role in the work-stress framework.

As evidenced by the ANOVA conducted on the responses given by each personality type it is clear that personality plays a key role in the work-stress framework (see *Table 4.23*). Further analysis of these results suggests that an individual's personality acts as a mediator of stress rather than changing how an individual perceives a workplace stressor. The exact mechanisms a Type "B" person utilizes to effectively mitigate against the negative outcomes of stress were not apparent in this study and is an area for further investigation.

Finding Three: Home-work interface influences both the level of psychosomatic strains reported by employees and how the employees perceive the level of trust in the organization.

As summarized in *Table 4.23* the home-work interface influences both the level of psychosomatic strains reported by the employees and how the employees perceive the level of trust in their organization. Individuals that reported a negative home-work interface also reported a greater number of psychosomatic strains and felt there was a lower level of organizational trust than was reported by individuals that had a positive home-work interface.

Table 4.23: Summary of the results for the Analysis of Variance that was performed on the extraneous variables of personality and home-work interface on the work stress framework. Statistically significant impacts at an alpha of 0.05 are indicated by a checkmark.

Variable	Decision Latitude	Psychological job demands	Psychosomatic Strains	Sleeping Problems	Social Support	Leadership	Teamwork	Trust	Initiative	Information	Role Ambiguity	Sense of Belonging
Personality			✓			✓		✓			✓	
Home -work interface			✓				✓					

Finding Four: Organizational culture has a significant influence on the work-stress framework.

The results of the study indicate that organizational culture has an important role to play within the work-stress framework. This is evidenced by the strong loading organizational culture has on psychosomatic strains and the significant difference in the

number of reported psychosomatic strains that are found between high strain individuals working in an engaged organizational culture compared to high strain individuals working in a restrictive organizational culture.

Organizational culture has a strong negative relationship with self-reported psychosomatic strains, which means the more positive the organizational culture the fewer reported cases of psychosomatic strains. Accordingly, a one-unit decrease of the organizational culture measure drove a 0.536 increase in self-reported levels of psychosomatic strains. Organizational culture does not however appear to have an influence on how an individual perceives their working environment as evidenced the low factor loading it has on psychological job demands. It does however have a direct correlation with decision latitude suggesting that organizational culture may work within the work stress framework as a buffer to job stressors rather than influence the individual's perception of the stressor itself.

Finding Five: Leadership plays a key role in predicting Psychosomatic Strains.

Analysis of the structural equation model developed to examine the influence of organizational culture characteristics on the work-stress framework shows that leadership plays a key role in predicting psychosomatic strains. Leadership exhibited a higher loading on the number of reported psychosomatic strains within the work stress framework than any of the other organizational characteristics being assessed. This is evidenced in the structural equation model shown in *Figure 4.12* where it shows leadership to have a high negative factor loading (-0.44) on the number of psychosomatic strains reported by study participants.

Table 4.22: Summary of the results for the Analysis of Variance completed on the demographic variables of participants as related to the work stress framework. Statistically significant impacts at an alpha of 0.05 are indicated by a checkmark.

Variable	Decision Latitude	Psychological job demands	Psychosomatic Strains	Sleeping Problems	Social Support	Leadership	Teamwork	Trust	Initiative	Information	Role Ambiguity	Sense of Belonging
Age	✓	✓	✓		✓		✓		✓	✓		✓
Education		✓				✓		✓			✓	
Classification				✓		✓						
Time on Job		✓		✓				✓				
Gender	✓					✓				✓	✓	
Work Location	✓									✓		
Marital Status												

From *Table 4.22* we see that the demographic variables assessed in this study play a key role in the work stress framework. Age appears to have the greatest influence on the work-stress framework followed by Education and Gender. This supports the finding of Cohen, Schwartz, Bromet and Parkinson (1991) who regarded age as a significant factor that confounds the effect of stressors on employee health status. Although this study shows that Gender and Education play an important role within the work stress framework, neither of these demographic features have a significant impact on the level of psychosomatic strain experienced by the employee.

This finding suggests that gender and education play a role in how the individual interprets and responds to their working environment but does not necessarily impact the

Chapter IV Summary

In this chapter the results of the research were presented. The return rates and characteristics of the survey returns were presented. An analysis of the demographic characteristics of the survey participants was then offered. This was followed by a discussion of the reliability and validity of the measurement scales used within the study. Then, each research question is answered in turn with the use of a variety of statistical instruments. Following the results of the statistical analysis, a summary of the major findings was presented.

CHAPTER V

CONCLUSIONS

Introduction

In this chapter a summary of the analysis of the data is presented, along with general and specific conclusions that can be drawn from the research. A summary of the research problem, the specific research questions, results and conclusions is also presented. Implications of the results and their extendibility is also discussed, followed by recommendations for the application of these results and the need for additional research.

Summary and Interpretations of the Results

This study examined how organizational culture affects job demands, job control, psychosomatic strains, and sleeping problems. The first three research questions addressed how extraneous variables such as personality; demographic characteristics and the home-work interface interact with the work-stress framework. The last two research questions involved the development of a structural equation modeling to determine the role of organizational culture in the work-stress framework.

Self-administered questionnaires were distributed to all employees in ExxonMobil's Western Canada operations through the company's internal electronic mail system. The response rate was 49%. After data cleaning, 186 cases were used in statistical analyses. The questionnaires gathered information on the constructs of job

demands and job control as work stressors, organizational culture, psychosomatic strains, personality, the home-work interface, and collected specific demographic information from each of the participants.

Based on a theoretical review and empirical studies, the measurement scales for each of these constructs were developed and utilized to investigate their relationship with the proposed work stress model. An examination of reliability and validity of the measurement scales revealed that the measurement scale for each construct was reliable and valid in terms of the internal consistency and accuracy of what they were supposed to measure.

For an analysis of the structural equation, first, confirmatory factor analysis (CFA) was conducted to refine the posited relationships of the observed indicators to the construct. Through CFA processes, the uni-dimensionality of each construct was confirmed and the composite reliabilities for each construct were calculated. A structural equation model was utilized to identify the structural relationships between the constructs. The structural model developed shows an excellent fit to the data as evidenced by a chi-square to the degrees-of-freedom ratio of 1.15.

An assessment of the data focuses on four major findings:

1. an engaged culture buffers workplace stressors and is associated with fewer reported psychosomatic strains,
2. the characteristics of an organization's culture work directly and indirectly to influence the experience of stress by employees at a workplace,
3. the organizational characteristic to have the greatest influence on the number of reported psychosomatic strains is leadership, and
4. the model used to assess the work-stress framework in this study has an excellent fit with the data.

The demographics characteristics of the population were shown to have a moderate but extensive influence on the constructs used within the model to characterize the work stress framework. The demographic variables of the participants that appear to

have the greatest influence on the level of stress experienced by the employee are age, gender and education. This is shown in *Table 4.22* where we see that age had a significant impact on eight of the twelve constructs used within the model, and gender and education both had a significant influence on four of the twelve constructs used within the work stress model. This finding reinforces the premise that demographic characteristics be considered in discussions surrounding the theoretical framework of work stress. This finding also provides evidence regarding the complexity of stress response processes and the need for further research into this area.

Because stress is such a personal phenomenon and our responses to it vary according to our work situations it is not surprising that this study provides evidence that an individual's demographic characteristics influences how the individual perceives stress. The demographics of the individual also play a role in the type of coping mechanisms utilized by the individual to mitigate against the negative outcomes of stress. It is also apparent that in addition to demographics, both the individual's personality and their home-work interface play a role in the work-stress framework.

The findings of this study suggest that an individual's personality acts as a mediator of stress rather than changing how the individual perceives their workplace. This conclusion is supported by the results that show personality has little impact on how a person reports workplace stressors but has a significant impact on the number of reported psychosomatic strains. The results show us that participants with a Type A personality report higher numbers of pyschosomatic strains than their Type B colleagues. It is however unclear the exact mechanisms a Type "B" person utilizes to effectively mitigate against the negative outcomes of stress and is an area for further investigation.

In general, the findings of this dissertation support the demands-control-support model of work stress proposed by Karasek and Theorell (1990). It is a relatively simple theory that is referenced in most job stress literature. However, this study failed to confirm the statement that high decision latitude counteracts the negative impacts of

high psychological workload. This statement is only proved correct if workers reported that their work place exhibited characteristics associated with an engaged culture. When on the other hand, a restrictive culture was reported the combination of high psychological job demands and high decision latitude was associated with high ratings for reported levels of psychosomatic strains. This result suggests that organizational culture may play an important role as a moderator within the work-stress framework.

Although the results of this study demonstrate that organizational culture plays a significant role in the work stress framework, it is apparent that a number of other factors not evident in the model influence the level of stress experienced by employees at the workplace. As noted earlier, organization culture, as defined by this study, accounts 0.34 of the total variance seen in the reported number of psychosomatic strains. Other items not explored within the scope of this study that may have contributed to this variance include such other variables as an employee's use of existing counseling services, past history, response bias, socioeconomic status, or additional home-work factors that were not assessed. Further investigation in these areas will be required to explain the variances associated with the reporting of psychosomatic strains.

Nine characteristics of an organization's culture were assessed in this study to expand our knowledge of the work-stress framework. The results show us that organizational culture has a strong loading on both decision latitude and psychosomatic strains. To examine this relationship further each of the nine organizational characteristics was assessed using structural equation modeling to better define the influence each of the characteristics has within the work-stress framework. The analysis of the model showed that some characteristics such as supervisor support loaded heavily on decision latitude and not on psychosomatic strains while other characteristics such as leadership loaded heavily on psychosomatic strains and not decision latitude. This suggests that some of the characteristics of an organization's culture work indirectly within the work-stress framework by influencing an employee's perception of work place stressors while other characteristics have a more direct influence within the work-

stress framework. For example, leadership has a direct influence on the amount of stress perceived by the employee as evidenced by leadership's strong loading on psychosomatic strains.

This finding suggests that organizational culture can potentially have a comprehensive and beneficial effect throughout the work-stress framework, rather than simply influencing the link from one variable to another. These findings support and build on the theoretical background of Karasek's (1979) demand-control-support model and that of House's (1981) framework of occupational stress.

Karasek and Theorell (1990) noted that a change in social support and a change in job control were almost inseparable when work stress was examined in relation to work design. The relationship between social support and job control prompted House to term "participatory work design processes" as a combination of job control and social support changes. This implies that social support at work can enlarge the latitude of job control and beneficially affect psychological strain. Similar results were noted in this study supporting the demand-control-support model.

The results of this study showed that supervisor support had general beneficial effects on psychosomatic strains, but did not have direct interaction effects on the employees' level of strain. Israel, House, Schurman, Heaney, and Mero (1989) similarly report that positive interpersonal relationships at work are significantly related to low perceived work stressors, high job satisfaction, low depression, and low illness symptoms. They did not however, include a discussion on the interaction effect of social support although the hypothesized model of their study included some interaction terms for social support. Their study implies that social support at work has clear beneficial main effects on the whole work stress process but direct linkages could not be found.

LaRocco, House and French (1980) found an interaction effect of social support at work on the relationship between work stressors and general mental health, but failed to find interaction effects on the relationship between work stressors and psychological

strain. In a literature review of community-based social support, Cohen and Wills (1985) conclude that the main effect of social support on stress is clear but the interaction effect is not clear.

The structural equation models assessed in this study demonstrate that supervisor and coworker support play a key role in the work stress framework; showing high factor loading scores on both decision latitude and psychological job demands. The structural equation models also demonstrate that leadership plays a much larger role within the work stress framework by directly influencing the negative outcomes of stress rather than influencing workplace stressors as does social support.

The characteristic of an organization's culture that appears to have the greatest beneficial effect on the work-stress framework is that of leadership. In analyzing the relationship between leadership and the proposed work-stress framework several conclusions can be drawn. This study has shown that leadership plays a key role in both defining an organization's culture and acting as moderator within the proposed work stress framework.

Leaders characterized by those who are able to effectively communicate, appear confident, provide clear direction, "walk their talk" relative to new initiatives and care about people and not just financial performance play an important role in reducing employee stress. Similar results were reported by Bell and Carter (2001) who conducted a survey of medical workers and found an increase in employee stress and sickness absence when their leadership displayed a laissez-faire or inactive leadership style. They also found that 'Transformational' leaders inspired and intellectually stimulated employees.

"The results of this dissertation show that it is possible to improve the health of the worker by changing the organization of work towards a situation with reasonable psychological work demands, and greater skill discretion and authority. Even more importantly, improvements should be directed towards aligning the company's culture with the ideals and principles characterized by an engaged organization. In particular,

this research showed that companies should concentrate their efforts on transforming their Leadership to be responsive to the needs of its organizations from both a financial and a personal perspective." (Bell & Carter, p. 42).

Implications

The implications of these results are varied. First, because this study is the first of its type to be performed in this environment it provides baseline data to which others might conduct a comparative analysis. Second, the information gained in this study is useful to the various managers, supervisors, and employees of the Upstream Petroleum Industry. It provides evidence that there are relationships between personal and environmental characteristics that can be measured and perhaps manipulated, in the design of effective stress reduction programs. These characteristics should however, be measured again to establish the extent of their influence on the work stress framework and begin to establish a chain of causality. As a final implication, as in all research endeavors, without replication studies and the establishment of a "body" of knowledge any interpretations of these data is subject to and open to further study.

The ability to generalize from data solely derived from questionnaires is limited (Kerlinger, 1986). However, even though the task is difficult, when researchers seek to measure attitudes the survey instrument can yield vital information. The beliefs, opinions, attitudes, and feelings that participants have about cognitive objects are important and can be interpreted with the use of questionnaires. It is however important to verify the findings from questionnaires with observations by skilled assessors. Future researchers should build on the findings presented in this study and conduct multifaceted research using questionnaires and observational techniques expand on the importance of organizational culture and specifically leadership in the work stress framework.

This study was founded on research that has been completed in other organizations. The results of the previous studies were then compared to the results of this study in an attempt to provide a weight of evidence in support for or against the proposed hypothesis. In a like manner, the results of this study can be extended to other situations building on the body of knowledge regarding the epidemiology of stress. Obviously, the results will have a higher probability of usefulness in an environment

that is closely related. Researchers will have to take into account the unique aspects of the work situation under which the data used in this research were obtained. The merger of two companies having such distinct and separate management philosophies may have created a very unique situation. The uniqueness of this working environment is likely imbedded in the responses of the participants, but the general findings of this research should be transferable to a number of working environments.

Recommendations

Based on the results and conclusions of this study the author makes several recommendations. These are presented in four areas: (a) those relating to restrictive organizations, (b) those relating to engaged organizations, (c) those relating to work stress intervention, and (d) those relating to future studies.

(A) Recommendations for Restrictive Organizations

There are many similar aspects between restrictive organizations and engaged organizations, but unlike restrictive organizations, engaged organizations build on those similarities to create a more meaningful work experience. The results of this study indicate that restrictive organizations have not truly evolved into an organization that is looked upon as "people friendly". This is a direct result of the low levels of trust and lack of effective communication characteristic of a restrictive work cultures. A company's leadership that is committed to creating a high performance-working environment should be able to adopt concepts from an engaged organization thereby assisting their companies to achieve organizational effectiveness, both financially and culturally. As a first step, organizations with a restrictive culture should focus their energies on developing strategies that foster greater communication throughout the organization. Some aspects of this strategy should include a means to provide

employees with clear direction, keep employees informed regarding activities that impact their job function, and processes and procedures to allow employees to better communicate their concerns and ideas to management. Accordingly, any commitment made by leadership must be followed through on to maintain a trusting, high performance working environment.

(B) Recommendations for Engaged Organizations

All areas assessed in this study pertain to the investigation of organizational approach and its influence within the work-stress framework. Associated with this, employees that work in atmospheres characteristic of an engaged culture achieved high levels of organizational trust and reported fewer psychosomatic strains. It has yet to be seen if these benefits translate into greater shareholder value but it is important for those organizations to continue placing their employee's first and empowering them to make important decisions pertaining to their job, as well as communicating information about the organization. This type of organizational structure may not work for every organization, however, it can provide some benefits to those companies that are looking for a little less structure.

(C) Recommendations For Work Stress Intervention

This study found that organizational culture has a greater effect on psychosomatic strains than psychological job demands and decision latitude combined. This means that the culture of an organization holds the key to powerful moderators of work stress. Thus, organization-wide programs such as those designed to promote a supportive climate at work are strongly recommended to prevent work stress. In this study, the type of leadership perceived by the employee affected the entire work stress framework including both work stressors and the level of reported psychosomatic

strains. This result enlarges the significance of leadership to promote psychological well-being at the work site. The related literature and the findings of this study suggest that work stress negatively influences the entire well-being of an organization and that leadership can act to comprehensively decreases work stress and its effects (Iverson, Olekalns & Erwin, 1998; Baker, Israel, & Schurman, 1996). That is, work stress and leadership should be essential components of work-site health promotion and work stress prevention programs.

Many companies that have stress prevention programs focus the majority of their efforts on decreasing the physical and psychological symptoms of stress. They use a variety of techniques to treat stress-related symptoms such as physical therapy, massage, education on coping strategies, and counseling for stress prevention. These methods work for stress release but are not effective in addressing the antecedents of work place stress. If the cause of the stress is not addressed, employee stress levels will continue to rise. Therefore, work place stress management programs that first attempt to address the antecedents of stress will experience greater success in reducing employee stress levels than those programs that focus on the symptoms of stress. Using this approach combined with a high-level support in upper management will not only contribute to stress prevention but also help to promote employee well-being.

(D) Recommendations for Future Studies

This study researched many writings in the field of occupational stress. The study also reviewed associated coping mechanisms along with psychosomatic strains and organizational culture. Subsequently a theoretical model relating to organizational culture, stressors, and psychosomatic strains was presented.

The following recommendations for future studies are a result of the findings and are as follows:

1. A study could be conducted on the complexity of stress responses.

2. A study could conducted on the exact mechanisms a Type "B" person utilizes to effectively mitigate against negative outcomes of stress
3. A study could be conducted to explain the variances associated with the reporting of psychosomatic strains.
4. A study could be undertaken to identify what factors contributed to the large variance of psychological job demands reported by individuals in field locations.
5. A thorough analysis of the interactions between age, psychological job demands, and psychosomatic measures is warranted to understand the influence of age on the number of reported psychosomatic strains.

Chapter V Summary

In this chapter a summary of the findings has been presented. This included a summary of the findings for each of the research questions along with comparisons to the results of previously published research. A set of recommendations for the application of the results was presented followed by recommendations for future studies.

This study provides evidence to support the theory that an engaged organizational culture has specific characteristics that are able to buffer against the negative outcomes of workplace stress. Perhaps the most important of these characteristics is that of leadership. Leadership plays a key role in both defining culture and moderating the influence of stressors on the psychological well being of the employee. The suggestions for the implementation of the findings and for additional research found at the end of Chapter V may serve to help guide the practice of those who wish to tackle some of the wider implications raised by this study.

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APPENDICES

APPENDIX A

A.1: Standardized Regression Weights

Table A.1: Standardized Regression Weights of Organizational Culture Constructs on the Work Stress Framework.

Standardized regression weights		Organizational Culture Construct	Estimate
Psychol job demands	<----------	Supervisor Support	.123
Psychol job demands	<----------	Coworker support	.248
Psychol job demands	<----------	Team functioning	-.392
Psychol job demands	<----------	Leadership	-.046
Psychol job demands	<----------	Trust	-.109
Psychol job demands	<----------	Initiative	-.017
Psychol job demands	<----------	Sense of Belonging	-.041
Psychol job demands	<----------	Role Ambiguity	-.017
Psychol job demands	<----------	Information	-.041
Decision Latitude	<----------	Supervisor Support	.312
Sleeping problems	<----------	Psychol job demands	.208
Decision Latitude	<----------	Coworker support	.051
Sleeping problems	<----------	Supervisor Support	.065
Sleeping problems	<----------	Coworker support	-.213
Decision Latitude	<----------	Leadership	.075
Sleeping problems	<----------	Leadership	-.123

Standardized regression weights		Organizational Culture Construct	Estimate
Decision Latitude	<----------	Team functioning	-.074
Sleeping problems	<----------	Team functioning	.136
Decision Latitude	<----------	Trust	.059
Sleeping problems	<----------	Trust	.016
Sleeping problems	<----------	Sense of Belonging	-.167
Decision Latitude	<----------	Initiative	.069
Decision Latitude	<----------	Information	.036
Decision Latitude	<----------	Sense of Belonging	-.064
Decision Latitude	<----------	Role Ambiguity	.192
Sleeping problems	<----------	Initiative	-.018
Sleeping problems	<----------	Information	-.052
Sleeping problems	<----------	Role Ambiguity	.356
Psychsomatic strain	<----------	Leadership	-.437
Psychsomatic strain	<----------	Sleeping problems	.186
Psychsomatic strain	<----------	Decision Latitude	.143
Psychsomatic strain	<----------	Trust	.035
Psychsomatic strain	<----------	Initiative	-.106
Psychsomatic strain	<----------	Information	-.058
Psychsomatic strain	<----------	Team functioning	-.088
Psychsomatic strain	<----------	Role Ambiguity	.093
Psychsomatic strain	<----------	Supervisor Support	-.023
Psychsomatic strain	<----------	Coworker support	-.017
Psychsomatic strain	<----------	Sense of Belonging	-.018

A.2: Assessment of Normality (Personality Type A)

Table A.2: Structural Equation Model of Work Stress Framework, Assessment of Normality for Personality Type A.

Variable	min	max	skew	c.r.	kurtosis	c.r.
Home-Work	9.000	16.000	.292	.998	-.477	-.815
Culture	2.000	79.000	-.060	-.206	-.341	-.583
Psychol job demands	19.000	48.000	.231	.790	-.123	-.209
Decision Latitude	54.000	92.000	.151	.516	.410	.700
Sleeping problems	.000	1.000	.630	2.153	.498	.850
Psychosomatic strain	.028	.694	.642	2.192	-.334	-.570
Multivariate					3.212	1.372

A.3: Assessment of Normality (Personality Type B)

Table A.3: Structural Equation Model of Work Stress Framework, Assessment of Normality for Personality Type B.

Variable	min	max	skew	c.r.	kurtosis	c.r.
Home-Work	.000	16.000	-1.399	-6.151	5.227	11.492
Culture	16.000	70.000	-.476	-2.092	-.195	-.429
Psychol job demands	24.000	48.000	.545	2.397	.071	.157
Decision Latitude	42.000	94.000	-.429	-1.885	.212	.465
Sleeping problems	.000	1.000	.642	2.823	-.609	-1.339
Psychosomatic strain	.028	.583	.603	2.651	-.563	-1.237
Multivariate					6.894	3.789

A.4: Conditions of Use

Conditions of Use

The author of this study gathered confidential information from participants in order to assess the impact of organizational culture on the work stress framework. Participation in the study was voluntary and anonymous. To ensure the anonymity of study participants and maintain in strict confidence the names, characteristics, questionnaire scores, ratings, incidental comments, and/or other information on the participant, only the author and his direct supervisors at Edith Cowan University are allowed access to the raw data collected.

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