Control Perception and its Role in Stress Appraisal and Coping

A study in work-related stress

A thesis presented in partial
fulfilment of the requirements

for the Degree
of Doctor of Philosophy
in Organisational Psychology at
Massey University

Carolyn Ann Troup

1998

ABSTRACT

Psychological theories view control as integral to emotional well-being and consequently this concept has played a prominent role in stress theories. In the transactional theory of stress control plays an important role in stressor appraisal where it is proposed to influence coping behaviour and coping effectiveness. However, little attention has been paid to the measurement of this important concept. This study adopts the transactional model to examine work-related stress and a major objective of the study is the development of a robust measure of situational control. It is argued that such a measure can not be merely reduced to a simple assessment that an individual either has or does not have control over a given situation, rather, it is important to identify the factors over which an individual strives to have control, as well as the degree of control over these factors that they perceive themselves to have.

A pilot study was used to develop a 35 item scale for measuring situational control. The scale was then used in a survey of work-related stress that was administered to 134 employees in four departments of New Zealand government. Principal component analysis revealed that control perception is a multifaceted concept, and four facets representing predictability, task control, self control and general control were identified. Using these scales the study investigated the role that control plays in predicting coping behaviour and coping effectiveness. Through a series of moderated multiple regression analyses, control was examined as a moderator in the relationship between stress appraisal and coping behaviour. This analysis showed that perceptions of control are associated with problem-focused coping. This result is consistent with other studies and suggests that a greater perception of general control in the workplace is associated with greater use of problem-focused coping. However, the literature is more equivocal on the relationship between control perception and emotion-focused coping. The study found a significant interaction between self control and primary appraisal in predicting emotion-focused coping. In addition to this, situational threat was found to have a significant main effect on emotion-focused coping. The study also examined the influence of control perception and coping behaviour as predictors of perceived coping effectiveness, as proposed by the goodness of fit hypothesis. No evidence was found to support this hypothesis, although coping behaviour and control were both found to have main effects in predicting coping effectiveness.

ACKNOWLEDGMENTS

I would like to thank the following people for their support and cooperation in conducting this research and in the preparation of the thesis.

I would like to thank the four organisations who gave their consent to allow their employees to be recruited into the study and to the participants for completing the surveys.

To my supervisors: thanks to Philip Dewe for your continued support throughout this project and, to Doug Paton, thanks for agreeing to step in as a supervisor in the second year of the project.

Finally, a big thanks to Doug Goldson.

CONTENTS

CHAPTER 5 - SCALE DEVELOPMENT AND PSYCHOMETRIC EVALUATION

ILLUSTRATIONS

FIGURES

TABLES

Chapter 1

INTRODUCTION

People use the term *stress* to refer to a whole variety of aches and pains. Three common uses can be identified (Cartwright and Cooper 1997). For example, an individual might refer to vague and unpleasant feelings by saying "I feel stressed out" or they might describe a moody colleague by saying "he's under a lot of stress". They even use the term to refer to various workload characteristics by saying "it's a stressful job". These expressions suggest that stress is not a simple concept.

In the last few decades work has become considerably less physical for many employees but much more psychologically demanding (Bateman, 1996) and consequently it has become a significant source of stress for many people. Today, most people are aware that work-related stress can have negative consequences on their health and well-being. Moreover, they appear to accept this as an inevitable part of working life.

According to Cartwright and Cooper (1997) workplace stress is primarily the result of change, lack of control and high workload. In the last few decades the workplace in developed countries has undergone considerable change and this looks certain to continue. This will likely mean that the incidence of work-related stress will increase in the future.

The Study Of Work-Related Stress

It is only over the last two decades that occupational stress has developed into a field of research in its own right (Newton 1989). Because it is in its infancy it is not only lay persons who use the term *stress* in different ways, occupational researchers themselves disagree over its meaning. Numerous definitions that have been proposed each vary in the emphasis they place on the stimulus event, the response to a situation or the nature of how a situation is appraised. A careful discussion of these definitions will be made in Chapter 2 to provide the rationale for adopting the transactional model in the present study to examine work-related stress.

However, the lack of a precise definition, which has itself received a lot of

debate in the literature, has not prevented researchers from agreeing that workplace stress involves a sequence of components that can be viewed as a process. Although there is disagreement, the components that have been identified can be integrated into a general framework which most researchers agree with (Cohen, Kessler, Underwood-Gordon 1995). This framework suggests that the stress process begins with an individual who perceives a work characteristic as either qualitatively or quantitatively too demanding or difficult for them and beyond their ability to cope. This then leads to psychological and physical changes that can result in both short-term and long-term consequences for both the individual and the organisation.

Major Work Stressors And Their Consequences

While there is no debate that individuals derive positive benefits from work, the study of occupational stress is concerned with the negative consequences of work and the work environment. Much of the initial focus for researchers was to identify those characteristics in the work environment that are stressful for individuals. These have been classified into six major sources of stress that have been outlined in several comprehensive reviews (Cartwright and Cooper 1997, Sutherland and Cooper 1988, Cooper and Marshall 1976). These six categories are factors intrinsic to the job, the role an individual holds in an organisation, the relationships that exist between employees, career development, the structure and climate of the organisation and non-work factors.

Over the last three decades evidence has been found that links these work characteristics with negative psychological and physical consequences for employees. For example, researchers have suggested causal relationships between work characteristics and various health consequences such as cardiovascular disease (Boman and Rahe 1988), cancer (Kasl 1984), increased hypertension (Cincirpini 1988), infectious disease (Cohen and Williamson 1991), psychosomatic disorders (Frese 1985) and drug and alcohol dependence (Gorman 1988, O'Doherty and Davies 1988).

Other researchers have linked the impact of work stress to various organisational consequences such as increased work accidents (Murphy, Dubois and Hurrell 1986), impaired work performance (Motowildo, Packard and Manning 1986), absenteeism from the workplace (Farrell and Stamm 1988), greater intention to quit and job turnover (Barling, Wade and Fullagar 1990).

These categories of stressors and their consequences have important implications for a study concerned with the relationship between stress and control. They suggest the need to identify the control mechanisms that are available to employees in the workplace, but more importantly to identify the factors that individuals perceive are important to have control over. Also to examine the direct and indirect opportunities where employees may obtain control and to examine how specific forms of control are related to specific stressor consequences.

The Costs Of Work-Related Stress

Increasing physical, behavioural and psychological consequences of work have led to rising health and medical expenses for both individuals and organisations. Workers compensation pay outs have steadily increased in some countries and rising costs for organisations in terms of productivity loss has meant that work-related stress has become a costly problem. In America work-related stress has risen from $13.6 billion in 1980 to $27.4 billion in 1987, with total direct and indirect costs for stress related and mental disorders estimated at $100 billion (American Psychological Society 1993). In Great Britain, costs are also said to be on the rise. Stress related absences from the workplace were estimated at £2 billion per annum, ten times more costly than all other industrial related disputes (Cartwright and Cooper 1997).

Closer to home, in Australia claims for compensation have also begun to rise. In Queensland workers compensation claims increased from 288 in 1988-89 to 413 in 1990-91 (Williamson 1993). Nationally, approximately $150 million is paid out each year for worker health related costs (Bateman, 1996). Williamson (1994) analysed the Australian National Data Set and found that more than half of the stress related compensation claims which had been made in 1992 resulted in employees taking at least four weeks off work. There is no disputing that work-related stressors are becoming an increasingly costly business for both individual and organisation.

Occupational Health In New Zealand

In New Zealand legislation regarding occupational health is determined by the Occupational Health and Safety in Employment Act (1992). To prevent workers from being harmed it has three main objectives: to promote excellent health and safety in the workplace, to require people in industry to perform specific duties and to regulate and approve codes relating to specific hazards. Funding for the service is provided by the Accident and Rehabilitation and

Compensation Insurance Corporation (ACC) and eight categories of disease are currently identified whereby an employee suffering one of these conditions can claim for compensation. Unlike some other countries, mental ill health is not recognised as an injury that New Zealand workers can claim for. However, a draft guideline is currently being developed and it has been suggested that this may incorporate psychological stress and the related issues of fatigue and shift-work (Bateman, 1996), so this may change in the future.

In New Zealand there are currently no figures estimating the economic costs attributable to work-related stress. However, other physical work-related stressors such as Occupational Overuse Syndrome (OOS) are on the increase. OOS has tripled in the last few years. During 1995-1996 8,277 claims were paid out, costing $9.75 million, which included temporarily replacing employees during their absence from work (Human Resources, 1997).

According to a recent study of sixteen countries, New Zealand workers were claimed to be among the most stressed in the world (Sullivan 1995). The study revealed that work was perceived as a major cause of stress for over 65% of our office workers, with another 19% of employees fearful of losing their job. New Zealanders represented the largest percentage of respondents who reported that they strongly agreed to the statement "I am not appreciated at work" and 25% of the sample felt that they were not treated as a person at work, rather like a cog in a machine.

Tony Simpson, President of the New Zealand Public Service Association, claims that office workers have for some time been under considerable pressure (Potter, 1994). He believes that the structural changes which have been occurring in New Zealand organisations over the last decade and a half are leaving more employees to make decisions that they are not trained to make and with less resources, resulting in their feeling disgruntled and powerless.

The general trend of statistics collected in western countries is that negative work-related consequences, including psychological disorders associated with the workplace, are on the increase. There is no reason to believe that the situation in New Zealand is markedly different from other developed countries. However, it would appear that until psychological health associated with the workplace is recognised as an occupational health consequence little will be

done by employers to reduce excessive demands that are experienced by employees.

Management Of Work-Related Stress

Action taken to combat workplace stress in a number of countries has included statutory provision which makes explicit reference to psychosocial risk factors. In the United States the National Institute for Occupational Safety and Health recognises psychological disorders as a leading occupational health problem. Psychological disorders are one of the ten leading work-related diseases and injuries and over 60% of companies with over 750 employees provide some type of work programme to deal with work-related stress (International Labour Office 1992).

One of the best examples of preventative action has been developed in Scandinavia. The Swedish Work Environment Act is based on ergonomic principals which require employers to design work and workplaces which take into account both physical and psychological well-being.

In contrast to this, occupational health and safety legislation in New Zealand and in other developed countries is not prescriptive, it merely imposes a responsibility on employers to be informed and to prevent workplace hazards. Without appropriate legislation intervention programmes are therefore implemented on the basis of managerial perception of workplace stress. McHugh and Bryson 1992 (cited by Daniels 1996), who conducted a study in Ireland found that while over 84% of managers perceived that their employees experienced stress within the organisation, only 5% of those managers reported that their organisations had implemented a specific strategy to deal with the problem.

Keith McGregor, an employment expert in Wellington, suggests that things are getting worse in New Zealand, with fewer companies than five years ago offering stress programmes for their employees (Potter, 1994). Daniels (1996) claims that managers underestimate the risks associated with workplace stress and perceive that it is not the organisations responsibility to help employees cope with stress.

Organisations rarely estimate the costs of absenteeism, job turnover and low productivity (Dale and Cooper 1992, cited in Cartwright and Cooper 1997). The figures outlined earlier suggest that these indirect costs can be enormous.

In America, where employer involvement in managing workplace stress has risen, the benefits appear to be showing in a decline in stress-related illness (Cartwright and Cooper 1997). However, this is only occurring in countries where industry, faced by increasing employee health costs and worker compensation payouts, has taken positive action to reduce stress-related illness.

When interventions are put in place they are generally targeted at helping individuals to cope with stress, when it is more likely that organisational interventions which attempt to lesson work stressors or to facilitate employees coping with demands more effectively, would be of greater use (Handy 1988). Cartwright and Cooper (1996) believe that dealing with stress must be viewed as a dual responsibility of individuals and organisations. This means that individuals will need to be skilled in analysing work stressors and have adequate experience to enable them to deal effectively with these problems at work. As well as this, resources need to be made available from the organisation to assist individuals to cope with stressors.

Research is still necessary to understand how individuals evaluate the resources that are available to them that may help them cope more effectively with work stressors and to examine what factors influence individuals to use particular strategies to cope with work-related stress. Intervention programmes could benefit further from understanding the factors that influence the relationship between work stressors and coping effectiveness, such as appraisal and coping behaviour.

Contemporary Research Interests

Past research in occupational stress tended to concentrate on identifying major sources of stress for employees. Much of the early evidence revealed that what one individual thrives on, another may find threatening and that the relationship between a stressor and a strain is not that simple. As a result contemporary research over the last decade has begun to focus on those factors which make individuals vulnerable or resistant to stressful episodes. These factors are referred to as moderators and an understanding of how they are involved in the stress process has developed substantially (Baron and Kenny 1986).

Researchers have distinguished between internal moderators, such as personality factors, and external moderators which comprise the resources

available to individuals. These variables have been used to understand the relationship between various work stressors and individual and organisational outcomes. Some moderators are said to play a role as a buffer between the stressful event and psychological or physical health outcomes (Taylor and Aspinal 1996). For example, when people experience high levels of work stress a moderating variable may help to reduce the demands of the situation and may prevent individuals from developing negative health and mental health symptoms.

One important variable that has been recognised by researchers is the concept of control (Parkes 1989). Control has been proposed as a moderator in the stressor-strain relationship (Karasek 1979) and a sense of control has been found to be adaptive for coping (Thompson and Spacapan 1991). This variable has been used in intervention programmes to help people cope effectively. The workplace is an environment where many individuals may have little control. Individuals with limited potential for control are believed to be at risk of developing psychological health problems.

In the past researchers have identified factors that objectively give individuals control at work. However, what they have not done is to examine whether individuals perceive these factors as giving them any meaningful sense of control when they are in stressful situations.The present study focuses on this concept and the literature review in Chapter 3 examines the way that control has been measured in the literature and discusses its role in the stress process. This review provides the impetus for the two key objectives that the study investigates. These are discussed in more detail in the next section.

Outline Of The Study

The study is concerned primarily with the concept of control and with exploring individuals perceptions of control. It is interested in identifying those factors that give individuals a sense of control in their work environment and how this evaluation of control may in turn influence how they cope with work stressors. The next section briefly discusses the approach adopted to investigate work-related stress and outlines the goals and objectives of the study.

It is important to recognise that individuals perceive stressors in the work environment in different ways and that this may lead to their evaluating and acting on a situation differently. To understand this person-environment relationship it seems to be necessary to understand what work characteristics

mean to individuals and subsequently to examine those moderating variables that may influence the choice of coping strategies that they use.

The transactional approach to stress emphasises the importance of the individual's perception and evaluation of an event. This evaluation of a situation is referred to as *appraisal.* Appraisal defines the relationship that an individual has with the environment by identifying the way in which an individual views the situation in terms of its personal significance or meaning. This in turn determines what they perceive can be done about changing a situation (Lazarus and Launier 1978).

Appraisal is recognised as an important component of the stress process. However, this aspect has generally been neglected in empirical studies of work-related stress. For this reason the transactional approach to stress was chosen in the study. Further discussion of the rationale for adopting the transactional view is given in Chapter 2.

By adopting the transactional approach to investigate work-related stress this study intends to investigate how people perceive, experience and deal with stressful encounters in the workplace. The transactional approach advocates a situation-oriented approach to stress (Folkman and Lazarus 1980). In this way it is possible to examine each component of the stress and coping process in relation to a specific workplace stressor.

Part of the appraisal process involves individuals perceptions of control in stressful incidents. By examining a specific event it is possible to identify how control resources are appraised and how they may influence certain coping behaviours. It has generally been accepted that when employees recognise that they have control mechanisms available to them in the workplace, that this can moderate the extent that stressors lead to negative consequences (Parkes 1989). However, as will be discussed further in Chapter 3, control is a more complex concept than it may at first seem. Further attention to the way that control is measured is necessary before it can be properly understood as a moderator in the stress process.

After examining the concept of stress and the different approaches that have been used to study it, the transactional framework was chosen to investigate work-related stress. Within this framework the concept of control was reviewed, and two objectives relating to the concept of control were established. The first

objective was to develop a measure of control that could assess control in a meaningful way that did justice to its many facets and which was able to identify what it is that control is perceived to be over. The second objective was to explore the role of control perceptions in the process of coping with a single workplace stressor. These objectives were achieved in two stages and they are described further in the next section.

Structure Of The Thesis

There are seven chapters that follow this introductory chapter. Chapters 2 and 3 are concerned with examining the two concepts that are central to the study. These are the concept of stress and the concept of control. The concept of stress, is examined in Chapter 2 and has been a subject of investigation for considerable time and consequently it is important to examine the many ways it has been defined. Following this a discussion of work-related stress models that have been popular in occupational stress literature are examined and a justification for adopting the transactional definition of stress in the study is provided. It will be argued that the transactional approach can provide a useful alternative to current organisational models of stress. Fundamental to the transactional definition of stress, is the concept of appraisal, which until recently has been neglected by occupational stress researchers. However, while the transactional approach provides an altemative to current occupational stress models, adopting it into this context is not without difficulties. One particular limitation is the way in which the process of secondary appraisal, in particular control perception, has previously been assessed.

Consequently, it is in Chapter 3 that we turn our attention to the concept of control. It is argued in this chapter that the appraisal of control within transactional stress studies need further attention, particularly in light of its role as a moderator of coping behaviour and coping effectiveness. Thus, this chapter examines the different approaches to control which have been taken in organisational research. Highlighting strengths and limitations of recent control measures provides the principal objective of the study, which is to identify and classify the different facets of control available to employees in the workplace.

It is in Chapter 4 that the research strategy used in the study is described. This involved a two stage process. In stage one an exploration of employees perceptions of the meaning of control in the workplace was carried out as a

preliminary to developing items for the control scale that was used in stage two. In stage two, this scale of control was incorporated into a eleven page survey booklet that was used to explore control perceptions, appraisals and coping behaviour of a single workplace incident which employees reported.

The results of the study are displayed in two chapters: Chapters 5 and 6. Chapter 5 deals with the development and evaluation of the scales used in the main study. The evaluation of these scales was carried out using principal component analysis. Reliability coefficients were calculated and these demonstrate that the scales are acceptable.

Chapter 6 presents descriptive information and correlational analyses of all the variables collected in the main study and involves a series of multiple regression analyses used to explore the role of control in the stress and coping process. The first set of regressions look at the role of control as a moderator in the appraisal and coping behaviour relationship. The second set of analyses explore the role of control as a moderator of the coping behaviour and coping effectiveness relationship.

A discussion of the results from the study in relation to relevant research findings is presented in Chapter 7. The thesis concludes in Chapter 8 with some final conclusions, including a summary of the limitations of the study and some directions for future research which are suggested by these findings.

Chapter Summary

In summary, this chapter has briefly introduced the topic of occupational stress, provided some discussion on the consequences and financial costs of this problem for both individuals and industry, and considered these issues in the specific context of occupational health in New Zealand. Over the last few decades the nature of occupational stress research has been to examine and identify the relationship between various work characteristics and physical, psychological and behavioural consequences. Today the focus of research is to examine those variables which intervene in the stressor-strain relationship and influence effective coping behaviour. This study will explore the role of control perceptions in the stress appraisal and coping process. The aims and objectives of the study were briefly introduced and these will be more fully described in Chapters 2 and 3. Finally, the structure of the thesis was outlined. The next chapter looks at the concept of stress.

CHAPTER 2

THE CONCEPT OF STRESS

The concept of stress has received a lot of attention from researchers in a number of disciplines. As Frankenhauser (1981 p.213) states "research on human stress is the meeting place for several disciplines". These disciplines include biology, physiology, medicine, engineering, sociology, behavioural sciences, organisational behaviour and psychology, to name a few, and they have all, in their own way, contributed to the contemporary view of stress that exists today. Thus, it's not surprising that the body of knowledge which has fallen under the rubric of stress research has varied, creating at times a considerable amount of debate over the precise meaning of the term *stress*, what the appropriate conceptual constructs are that need to be identified, what particular methods should be used to investigate stress, and who should be studied in stress research.

The different approaches to stress have, however, given rise to an understanding of the different components which make up the stress process. Typically, research has tended to examine these components in isolation rather than emphasise the transactional nature of stress and the psychological processes which bring the components together (Dewe 1992a, Lazarus 1991a, Cox 1990). With this in mind, the purpose of this chapter is to examine the different approaches which have been used to investigate stress and to present a rationale for adopting the transactional approach to the study of occupational stress.

The Meaning Of The Term Stress

The term *stress* is said to have its origins in Latin with the word *stringere,* which means to draw tight or to tighten (Cox 1978). Variants of the term in the English language, such as *stres, stresse, strest* and *straisse*, can be traced as far back as the 14th century. Cox describes an English poem that was written in 1303 which used the word *stres* and appears to imply strain or hardship.

However, it was not until the 18th century that the Oxford dictionary claims that the term *stress*, in the way that we may know it today, has been used in the English language (cited in Aldwin 1994). In engineering the term was

originally used to refer to a force or pressure placed upon an object (Cox 1978), but nowadays in mechanical physics it is used to refer to the intensity of such a force. Neither of these definitions were adopted in medicine and physiology. Historically the conception of stress in medicine is often attributed to the work of two physiologists, Walter Canon and Hans Selye. Canon who in 1914 began investigating the physiological response of cats that were exposed to a threat, referred to his subjects as *under stress*, though, it was Selye who first provided a specific definition of stress, as a universal physiological response.

In psychology Fisher (1986) refers to stress as an umbrella term because it is used to refer to a wide variety of "conditions, responses and experiences" (p7). Considering the number of disciplines that use the term *stress* as part of their technical vocabulary, and the variety of ways in which it has been applied, it is not surprising that there has been some controversy regarding its meaning. Some have suggested that the term should be thrown away all together (Hinkle 1974), others claim that it is not necessary if it were used precisely (Kasl 1983), while others recommend that it be used as a general term to refer to a complex phenomenon (Lazarus and Launier 1978). In the last decade this issue has appeared to abate as greater consistency in the use of the term *stress* has occurred in the literature, by adopting the term *stressor* to refer to external stimuli and *strain* to refer to outcomes or individual responses that are the result of demanding environmental stressors (Kahn and Byosiere 1991). At the same time a transactional approach which places importance on the concept of cognitive appraisal in the perception of stress removes the need to view the stress process in terms of a simple distinction between stimulus and response (Aldwin 1994).

Despite the disparate use of terminology, stress researchers in the 1990s believe that this has not prevented the field of stress research from developing (Kahn and Bysioere 1991). Aldwin (1994) argues that researchers are not confused by the term at all. She believes that specific disciplines each use it precisely to refer, in some way, to part of the process which they are interested in investigating. Cox and Griffiths (1994) refer to any confusion as a misconception and refute the claim that stress is a concept that is undefinable and unmeasurable. While there are still issues to be resolved, in particular issues regarding causality, how constructs should be measured and the specific role of intervening variables, it is generally accepted that there is agreement among stress researchers regarding the major components of the

stress process (Aldwin 1994) and their general sequence (Kahn and Byosiere 1991).

Approaches In The Study Of Stress

The issue regarding how stress is defined is however an important one. The definition of stress to a large extent determines the kind of research questions that are asked, what and how they are measured, and how they are interpreted. Generally, stress has been conceptualised in three broad ways, as a response, as a stimulus and as some kind of interaction which encompasses the two (Cox 1978, Lazarus and Launier 1978, Aldwin 1994, Cox and Griffiths 1994).

The response-based view has largely been dominant in medicine and physiology. As its title suggests, researchers who adopt this approach are concerned with the response that individuals make when they are exposed to a demanding or disturbing situation (Cox 1978).

The stimulus approach has largely developed in the disciplines of engineering and sociology. Here stress is viewed in terms of an external property in the environment which stimulates the individual in some way. This approach treats stress as an independent variable. It conceptualises stress in terms of a load or demand that is placed on the individual (Cox 1978) which is generally accepted to be aversive or threatening in some way.

The third approach, provides a more contemporary view of stress developed in psychology. Two distinct psychological views of stress have evolved. The first is referred to as the interaction approach, the second as the transactional approach (Cox and Griffiths 1994). Both approaches recognise that stress needs to be understood in terms of a process that entails stimulus and response, unlike earlier approaches which view the stress components in isolation.

The interaction approach defines stress in terms of an interaction between the person and the environment where the emphasis is on a lack of fit or some form of imbalance between the two (Cox 1978). While consistent with the interaction approach the defining characteristic of the transactional approach (Lazarus and Launier 1978, Lazarus and Folkman 1984, Cox 1978) is that stress is viewed as a psychological process of evaluation, referred to as cognitive appraisal. It is through this process of cognitive appraisal that the

relationship between the person and the environment becomes evident.

The three approaches which have been identified above will be described in further detail. Perhaps the simplest way to do this is to provide a historical outline of stress research, which has led to the view which is currently accepted by most stress theorists. However, it should be noted that the current view of stress has not evolved in a straight forward or simple linear fashion, rather components of the stress process, as identified by the transactional model (Lazarus 1966) have in fact been advocated for some time. In hindsight, it would seem that work stress researchers have had to explore the different components of the stress process separately and only in doing so has the holistic relationship between the person and the environment and the idea of stress as a process been able to emerge. Thus, the focus has quite naturally been to attend to the different components of the process and only after giving them due attention, to turn toward the process itself.

This chapter aims to highlight the various problems which investigators have been faced with and then to describe how they have attempted to deal with these problems. In so doing, it is suggested that a transactional approach to stress differs from stimulus, response and inert interaction approaches by conceptualising the phenomenon of stress as a dynamic psychological process and is currently the most adequate to investigate the nature of workplace stress (Dewe 1992b, Cox and Griffiths 1994, Barone 1991). With this objective we now turn to an account of the different approaches.

1. Response-Based Approach To Stress

Approaches that define stress as a response are concerned with detecting how the individual responds to a demand from the environment (Cox 1978). It is a response pattern or set of reactions that indicates in some way that an individual has been exposed to a demand. A response-based approach measures stress as a dependent variable.

Historically the development of a response-based definition of stress began in physiology with Walter Canon and Hans Selye. Canon found that catecholamines are released into the bloodstream of cats when they are exposed to a threat (barking dogs). He showed that this threat activated the cat's nervous system and that after the threat was removed the parasympathetic system would return to a normal state. Canon referred to this internal state of change as homeostasis, where the blood pressure, heart rate

and respiratory system are reduced and the body returns to a normal or passive state. He thought that this physiological response which he called the *fight-flight reaction* was a general reaction to any stimulus (Canon 1929).

Hans Selye went on to develop this work by focusing his attention on the corticosteroids. It is Selye who has become known as the 'father of stress', beginning his experiments with animals in the mid 1930s. Selye found that toxic gland preparations and a number of stimuli including heat, cold, infection and trauma produced what he referred to as a stereotypical sick syndrome (1983). He conceptualised stress as a particular pattern of physiological signs that functioned to enable an individual to resist or fight against some disturbing or demanding phenomenon, defining this as "as a non-specific response of the body to any demand made upon it" (Selye 1983 p.2). He believed that the response pattern was not dependent on the nature of the stimuli and that stress was characterised by a purely physiological response. Later he was to adapt his response theory to include mental and somatic effects.

Selye described this biological sequence as the General Adaptation Syndrome consisting of three phases, alarm, resistance and exhaustion, that were common to all threatening or disturbing environmental dangers (Selye 1983). The alarm phase characterised the subject's initial response to threatening stimuli. If the subject could survive the initial threat and did not die, a stage of resistance follows where improvement or disappearance of the initial symptoms occurs. With prolonged exposure to the stimulus an inevitable phase of exhaustion ensues and symptoms will reappear so that if stress continues, death may occur.

Canon and Selye's work viewed stress strictly as a physiological reaction, which they believed was universal in nature, and for some time this theory was accepted. However, a number of researchers thought that the syndrome sequence which Selye proposed was too simplistic (Mason 1971, Lazarus and his colleagues, cited in Aldwin 1994). Mason found that some physical stimuli did not produce the reaction sequence which Selye proposed. In a study where rats and monkeys were exposed to stressors, including hunger and cold, specific neuroendocrine reactions occurred depending on the type of stressor that was experienced. For example, the effect of heat did not produce the same non-specific reactions on all experimental subjects. Lazarus and his colleagues carried out a series of experiments during the

1960s, where they found that individuals varied in their stress reactions depending on the evaluations they made about the events. They concluded that the stress response was associated with the way in which the individual construed the environment (cited in Lazarus and Launier 1978 and Aldwin 1994).

The response-based approach has been largely developed through the disciplines of medicine and physiology. Although, it has continued today predominantly in behavioural science, where stress is defined as an internal experience which creates both a physiological and psychological imbalance within the individual (Ivancevich and Matteson 1980).

However, a number of general problems have been identified with this approach. McGrath (1970) makes three criticisms. Firstly, he claims that by defining stress purely in terms of a response pattern any object, event, or situation which produces the appropriate response pattern can be identified inappropriately as a stressful stimulus. Secondly, the same symptom syndrome can occur as a result of situations which are vastly different, particularly in the psychological meanings which individuals attach to these situations. Thirdly, he refers to the empirical studies that Lazarus and Mason have carried out that suggests that the syndrome sequence does not occur in the manner proposed by Selye.

In addition to these criticisms, Fisher (1986) points out that it is often difficult to establish the stress reaction or reactions from other behavioural responses. She also notes that stress reactions can be separated in time from the source which produces the reaction. An individual's perception of future events may elicit a stress reaction and a stress reaction may occur in relation to events that have occurred in the past, i.e. as a delayed response, as in the case of a post traumatic stress reaction. In this way the stress response becomes separated from the source of the problem, suggesting that intervening variables such as cognition and emotion must be taken into account to explain the stressor-strain relationship. Thus, it would appear that identification of the stimulus is an important component in a full understanding of the process of stress and that individuals vary in the way that they respond to stimuli. All this suggests that a response-based view of stress, on its own, can not give a complete account of the stress process.

At the same time as one group of researchers were concentrating on the

pattern of response as a way to define stress, another group were interested in investigating the situations which stimulated certain patterns of distress in individuals. To some extent these groups were able to avoid the problems associated with response-based approaches but only at the cost of encountering new problems of their own which would need to be overcome. It is to these stimulus-based approaches to stress that the discussion now turns.

2. Stimulus-Based Approach To Stress

The engineering approach to understanding stress offers a contrast to the physiological and medical definitions of stress. Here the concern was focused on the external forces that when placed on an object result in strain. When stress is defined in terms of a stimulus the investigation is focused on the characteristics in the environment which are disturbing or demanding to the individual (Cox 1978). A stimulus-based approach recognises that the situational context is important in explaining the stress process. The important questions here are what kinds of situations and what are the characteristics of these situations that make them stressful (McGrath 1970).

A variety of stressors have been examined in stress studies, including noise, environmental disasters, military combat, industrial work, illness, deprivation, imprisonment and life events, to name a few (Lazarus and Launier 1978). In the workplace the stimulus-based approach has received considerable attention from organisational researchers who have been concerned with identifying those work roles and organisational characteristics which are stressful for individuals. The findings from this research will be discussed later in the chapter.

A stimulus-based approach has also been favoured by sociologists, who view stress as a social process involving social, cultural and political components. Mechanic (1978) argues that reward and social evaluative systems must be assessed to understand individual adaptation. Others who adopt this perspective have been interested in the effect of social status and other social concepts such as deprivation and alienation (Graham and Reeder 1972). According to Mechanic, it is through our understanding of these social processes that the stress process can be placed in a broader and more meaningful context.

However, this view of stress has also been the subject of criticism. Lazarus (1966) claims that sociological approaches fail to adequately explain how

individuals perceive these social experiences. Totman (1979) also supports this criticism, by stating that no conceptual framework for linking social systems and processes to psychological ones has been sufficiently developed.

Another issue which concerns the nature of stressors is whether they should be measured as objective events or as subjective perceptions or appraisals. The original life events approach as conceived by Holmes and Rahe (1967) proposed that the aggregation of life events recorded an objective measure of the amount of change or adjustment which put individuals at risk of developing an illness. Sociologists have also been concerned with objective external circumstances, such as unemployment, which they argue do not depend on subjective perceptions (Aldwin 1994). However, Lazarus' early work suggests that rather than focusing on specific objective events, it is necessary to examine the way in which individuals perceive these events (1966). It is generally accepted that individuals will vary in the way they perceive certain external circumstances of the same sort. As a consequence, organisational research has focused on individuals' subjective perceptions of work characteristics (Payne, Jick and Burke 1982), which are believed to be better predictors of strain than mere objective documentation of these characteristics (House, McMichael, Wells, Kaplan and Landerman 1979).

However, certain models of work-related stress depend upon the assessment of both objective and subjective stressors to explain the relationship between work and work characteristics and their impact on health. Recently Cox and Ferguson (1991) suggest that perhaps one way to get around the problem associated with measuring objective stressors is to define them in terms of a shared reality or social consensus regarding the nature of the work environment. Clearly, the method which one adopts to assess external stressors depends very much upon the definition of stress which is used.

Putting this issue aside, the general criticism made of a stimulus-based view (McGrath 1970, Cox 1978) is that on its own this approach does not take account of individual variation. If we are to define stress as some form of individual reaction to adverse, demanding or threatening situations and experiences, this view is unable to explain why individuals can be equally affected by different forms of stimulation and differently affected by the same forms of stimulation. For example, job stress can be measured in terms of work overload and underload and individuals can experience both as stressful

(French, Caplan and Van Harrison 1982). Unless the individual's experience of a particular stimulus is taken into account, a stimulus approach to stress can not explain the fact that different stressors do produce varied individual reactions (Cox 1978).

Limitations Of Response And Stimulus Based Approaches

Response and stimulus based approaches have long been criticised for being out of date (Cox and Griffiths 1994). They are unable to explain research results because each component is investigated in isolation (Cox and Mackay 1981). Looking at these components in isolation treats the individual as passive and as Lazarus and Launier (1978) point out, a simple stimulus or response paradigm ignores psychological processes such as thoughts, motivation and individual feelings. They go on to say that it is logically inappropriate to consider stimulus and response in isolation, because when you think about a stress response you are inevitably interested in what stimulates that response and when you think about what factors in the environment are likely to be experienced as demanding or difficult, you then must ask yourself how an individual will respond to these circumstances. However, this is not to say that the contribution of stimulus and response approaches have not been important to the field of stress research. They have been necessary to understand the different components which are involved in the process of stress and through an understanding of the constructs themselves, made it possible to develop a view of stress as a dynamic process (Dewe 1992a).

3. Psychological Approaches To Stress

Psychological approaches to stress recognise that both the stimulus and response components of stress that make up the relationship between a person and the environment, cannot exist in isolation. The view of stress as a psychological process takes account of how individual differences arise and how these differences effect stress reactions (Cox and Ferguson 1991). Two distinct psychological approaches have been developed, the interactional and the transactional model (Cox and Griffiths 1994). The interactional approach to stress is discussed first.

a. Interactional Approach To Stress

An interactional approach to stress draws on both the stimulus and response components of the stress process taking a fuller account of both the person and the environment components. This has been done in a number of ways.

The simplest interaction approach suggests that greater demands from the environment which are placed upon an individual will result in strain. The life events approach which has largely developed through the work of Holmes and Rahe (1967) is based on this view. Holmes and Rahe originally proposed that the amount of change or readjustment which occurred as a result of life events was the critical factor to predict illness. During the 1950s the life events view was an important factor in the aetiology of disease. In the past twenty years it has continued to dominate much of the general stress literature, but has not been as popular with organisational stress researchers (Beehr 1994).

Early studies using this approach set out simply to examine the size of the relationship between an event or situation and an outcome. In the life events research many studies revealed modest correlations rarely exceeding .40 and explaining less than twenty percent of the variance (Rabkin and Struening 1976, cited by Thoits 1983). More often than not they were retrospective designs which could not provide causal explanations (Andrew and Tennant 1978). Consequently the explanatory power of the effect of life events on illness did not appear to be all that useful. Very few studies used prospective designs and few included unexposed matched control subjects.

As methodological weaknesses were identified in these studies, researchers began to focus their attention on the nature of the events. For example, they assessed the extent to which events were desirable or undesirable, controllable or uncontrollable, predictable or unpredictable and whether they were major or minor events. Yet even when changes were made to reduce methodological weaknesses, Thoits (1983) claims that life events research still failed to provide greater predictive power.

This approach merely combined stimulus and response components together without taking into account how individuals perceive events. An alternative approach which does incorporate the interaction of person and environment components, is to examine how the person perceives a demand made by the environment and their capacity to deal with this demand. For example, McGrath (1970) proposed that a particular demand from the environment would only become stressful if it was perceived by the individual to be beyond their capacity to deal with it. In this way interaction is defined by a misfit or imbalance between the person and the environment, where greater misfit or imbalance will produce strain. While this approach takes into account the nature of subjective perception, the specific nature of the intervening

psychological processes which explain the interaction between the person and the environment are not revealed (Fisher 1986).

It became increasingly apparent that situations alone could not account for much of the variance in predicting distress (Lefcourt, Martin and Saleh 1984) and consequently researchers began to explore a number of individual difference variables in the hope of understanding why some people succumb to the effects of stressors and others remain resilient. Mediator and moderator variables were identified as a way to improve the predictive accuracy in the stressor-strain relationship (Johnson and Sarason 1978). A mediator is a variable which helps us to understand the way in which two variables come to be associated, but the nature of the relationship is not effected (Baron and Kenny 1986). A moderator, on the other hand, is a variable which alters the nature of the relationship between two other variables, its presence may alter the direction or strength of the relationship between these variables.

Moderator and mediator variables tend to be classified either as predispositions or as psychosocial resources (Thoits 1983). Although a large number of variables have been measured, the following concepts have received the most attention. Predispositions tend to be seen as stable trait type dimensions such as, type A behaviour (Ivancevich and Matteson 1984), locus of control (Lefcourt, Miller, Ware and Sherk 1981) and hardiness (Kobassa, Maddi and Kahn 1982). Psychosocial resources tend to focus on external factors that are associated with particular situations and that are less stable, such as perceived control (Spector 1987), social support (Silver and Wortman 1981, Lefcourt et. al. 1984, Terry, Neilsen and Perchard 1993) and coping behaviour (Carver and Scheier 1994, Parkes 1994).

While the interest in moderators has not waned, researchers have not always been satisfied with their findings (Ganster and Schaubroeck 1995). Certain measurement issues have been identified which may account for this disappointment. Personality variables have been included in stress research with little rationale for the choice of particular measures (Parkes 1994) and it appears that more precise approaches to investigate the role of moderators are necessary. Parkes suggests that it is important to establish which variables act as moderators and with what outcomes they will be associated.

Psychological approaches have dominated contemporary views of stress, both in the general literature and more recently in the study of occupational

stress. This has led to a general agreement that the stress sequence comprises a stressor, an individual difference component and psychological, behavioural or physical outcomes. However, while many important relationships have been established, one particular problem has continued to be overlooked. Contemporary approaches emphasise the psychological processes involved in the stress outcome sequence but in doing so they present a static view of stress as a process (Lazarus and Launier 1978). Many approaches which incorporate both person and environment components continue to pay lip service to the intervening mechanisms that psychologically connect the person to the environment in a dynamic way (Lazarus 1991a).

If we are interested in the way in which the individual perceives the environment, it is necessary to go beyond merely examining personality traits and their relationship to particular environmental components and move towards an understanding of how situations come to matter to individuals and how individuals perceive their environment and their life circumstances in a meaningful way (Thoits 1983). It is here that some argue that a transactional approach can be most useful (Dewe 1992a, Cox and Griffiths 1994) and it is to this approach that we now turn.

b. Transactional Approach To Stress

A transactional definition of stress is consistent with the interaction approach described above (Cox and Griffiths 1994). However, it can be distinguished from the interaction view in three fundamental ways. Firstly, stress is viewed as a dynamic phenomenon that occurs between the person and the environment. It is not viewed as a static interaction. Secondly, stress is neither in the person nor in the environment but rather lies in the transaction which occurs between the two. Thirdly and most important, the transactional view of stress emphasises a psychological process of cognitive appraisal (Lazarus and Launier 1978, Cox and Mackay 1981). It is through the appraisal process that the relationship between the individual and the environment comes together.

The transactional approach that has been adopted in this study has largely developed through the work of Richard Lazarus and his colleagues (Lazarus 1966, Lazarus and Launier 1978, Lazarus and Folkman 1984), though few work stress researchers have accepted this approach beyond the conceptual level. For transactional studies in occupational stress see Dewe (1991b, 1992a, 1992b), Bowman and Stern (1995).

The theory is described as a cognitively-oriented, process-centred theory of stress and coping (Folkman and Lazarus 1984). The process of cognition allows individuals to have an active relationship with their environment, which itself is also dynamic. Thus the individual's relationship with the environment changes over time and stress is viewed as a process.

Stress is defined as "a judgement that environmental and/or internal demands tax or exceed the individual's resources for managing them" (Hólroyd and Lazarus 1982 p22). It is in this person-environment relationship that a particular situation comes to have meaning for an individual. The judgement or evaluation which the person makes of their environment can be explained through the psychological process of cognitive appraisal, which is made up of two parts: primary and secondary appraisal (Lazarus and Folkman 1984).

Primary appraisal is concerned with the personal meaning which the individual attaches to an event and the significance that it may have for their well-being. Primary appraisals can be irrelevant, benign-positive or stressful. Stressful appraisals are the judgements about the environment which are of most concern here. They can be viewed according to Lazarus and Launier (1978) in three ways: harm or loss, threat and challenge. Harm or loss refers to perceived damage which has already occurred. Threat appraisals imply potential damage and challenge appraisals suggest an opportunity for individuals to gain or obtain mastery over a situation (Folkman 1984). The different types of appraisal which individuals make in relation to their environment are believed to be characterised by different emotions (Folkman and Lazarus 1980).

Secondary appraisal is concerned with the evaluation of resources and the coping options available to individuals. An individual determines what possibilities exist for dealing with a situation. This can be influenced by their general beliefs about control as well as their situational perceptions of control (Folkman 1984). Secondary appraisal is distinct from coping behaviour. It refers to the evaluation of the coping resources, whether they are available in the environment and can be implemented, while coping behaviour is concerned with the actual efforts carried out (Lazarus and Folkman 1984). As this process is called secondary appraisal it may imply that it follows primary appraisal. However, this is not so (Lazarus and Launier 1978). Depending on the kinds of resources evaluated and perceived to be available, the secondary appraisal process can influence the appraisal of what is at stake and shape

the coping activity that will follow. Consequently the process of primary and secondary appraisal is reciprocal and both can influence coping behaviour.

Coping is an important element in this approach which Lazarus and Launier (1978) insist should be viewed as distinct from adaptation. There are two types of coping which individuals use to deal with situations that exceed their resources: those coping activities which are used to deal with the problem and those efforts that are used to regulate the emotion which is associated with a stressful experience. According to Folkman and Lazarus (1980) most people will use both kinds of coping to deal with a situation. However, it is stable patterns of coping which have been found to impact on long term psychological health (Folkman, Lazarus, Gruen and DeLongis 1986a).

An important aspect of this theory is that it describes a dynamic and process centred view of the nature of stress. Consequently concepts within this process are proposed to interact with each other and feedback on each other. This feedback process is referred to as reappraisal (Lazarus and Launier 1978). Reappraisal refers to the re-evaluation of a situation as it changes over time. In this way primary and secondary appraisal are said to influence coping behaviour and the coping process can feedback on the appraisal process. Thus, reappraisal refers to a repeated appraisal, taking account of change of information or a re-evaluation of the stressor or of a coping strategy which has been used. It is not clear where in this process reappraisal takes place. Presumably it can occur at any point in the stress state as adjustments to the situation or new information occur. Also, this process assumes that individuals have the capability to interpret and organise the stressful circumstances they find themselves in and to make comparisons of their evaluations and behaviour.

The experience of stress begins when a situation arises which exceeds in some way the individual's coping capacity. This is where the individual will ask what is at stake for my well-being and will consider possibilities for how to deal with the situation (Folkman and Lazarus 1980). An individual will weigh up the constraints, if any, and assess their capacity to deal with the situation. The stress state is typically accompanied by emotional and physiological responses. The emotion may define the stressful state for the individual and both psychological and physiological changes may initiate the coping process (Cox and Ferguson 1991). Individuals are likely to use both problem and emotion-focused coping strategies to deal with a particular encounter.

Folkman and Lazarus (1980) take the view that a stressful encounter will be effectively dealt with when individuals coping strategies are in line with their perceptions of control of the situation. The process of appraisal and coping is dynamic, the components in the process are mutually reciprocal and consequently individuals will reappraise how successfully the situation is being handled and whether particular coping strategies have been useful to deal with it.

The transactional process emphasises an unfolding process of appraisal, coping and adjustment in such a way that stress can not be viewed as a component which resides in the person, nor in the environment, but in the relationship between the two (Lazarus and Launier 1978). The other approaches which have been described either focus on only one component of the stress process or represent the relationship between the person and the environment in a static way (Cox 1990). The transactional approach recognises that individuals are not passive creatures impinged upon by stimuli in the environment, rather they are active agents which appraise their surroundings in a meaningful way. A transactional view claims that exclusively assessing either objective or subjective perceptions of the environment and of their outcomes is not enough to understand the process of stress, rather it is important to understand how the situation comes to matter to an individual. Through the psychological process of cognitive evaluation and coping it is possible to capture the dynamic nature of stressful situations which individuals experience.

Existing knowledge of work-related stress is extended by the components in the stress process which the transactional approach presupposes. By exploring the process of appraisal of work stressors it is possible to look at the stressor-response relationship as a transaction and to gain a deeper understanding of the relationship between the person and the environment. This may also provide new insights into methodology, measurement and explanation. Thus, it is this approach that has been adopted in the study to investigate how individuals perceive stress in the workplace.

Research Into Stress In the Workplace

The influence that work has in terms of individual health and well-being is widely accepted in organisational research and in society in general. Work provides opportunities for material wealth, achievement, a sense of purpose, social relationships and can help to develop a positive self concept. Empirical

studies have found that work influences psychological health, creating positive benefits for employees or acting as a buffer against stressors from other role domains (Locke and Taylor 1990). However, it is the negative aspects associated with the workplace which organisational researchers have paid most attention to.

Work-related stress has emerged as a distinct field of study in its own right (Newton 1989). A subject area that began in the 1960s with the Michigan studies (Kahn, Wolfe, Quinn, Snoek and Rosenthal 1964) has expanded quite dramatically in the last decade and a half (Kahn and Byosiere 1991). Generally however, research into occupational stress has followed much the same pathway as it has in the general field of stress. It has adopted broadly the same definitions of stress, followed the same trends in measuring certain variables as moderators and consequently it has had to consider some of the same theoretical and methodological issues. Although it has been slow to examine the concepts of appraisal and coping which are integral to the transactional model of stress. With this in mind, discussion now turns toward the research areas which organisational theorists have concentrated on over the last few decades.

Sources Of Stress At Work

Numerous empirical studies have identified workplace stressors and these studies are summarised in a number of reviews (Cooper and Marshall 1976, Schuler 1984, Glowinkowski and Cooper 1985, Sutherland and Cooper 1988, Kahn and Byosiere 1991, Evans, Johansson and Carrere 1994). The impetus of much organisational research began with the work of Kahn, French and colleagues at the Institute of Social Research, Michigan University. This pioneering work was undertaken to identify psychosocial stressors in the work environment. It is here that the concepts of role conflict (conflicting demands) and role ambiguity (lack of information to perform one's role effectively) were first identified as sources of stress (Kahn et. al. 1964). These concepts have provided the basis of a great deal of empirical research and they continue to play an important part in contemporary models of work-related stress (Van Sell, Brief and Schuler 1981).

A number of other sources of stress have also been identified in the work place. The major work stressor categories which have been identified include, factors which are intrinsic to carrying out one's job, role in the organisation, career development, interpersonal relationships and organisational climate

and structure (Cooper and Marshall 1976, Schuler 1984, Sutherland and Cooper 1988). In addition to these factors, researchers have also investigated extra-organisational stressors involving the work-family interface, such as those problems that transcend the workplace as demands arise from employees holding dual roles (Glowinkowski and Cooper 1985). Mackay and Cooper (1987) include the nature of repetitive work and ergonomic factors which are associated with new technology. Finally, Evans et. al. (1994) refers to a variety of physical stressors involving layout and arrangement of the work environment, architectural design, and ambient factors such as air quality, noise, temperature and vibration.

Consequences Of Work-Related Stress

In addition to the environmental and psychosocial stressors that have been described, contemporary researchers into occupational stress have also been interested in the consequences, outcomes and responses which are believed to be part of the stress process. These are generally divided into three categories of strain: psychological, behavioural and physiological, which can be analysed at the level of either the organisation or of the individual (Beehr 1994). Most studies tend to focus on either one or other type of response, and this has often been identified as a criticism of the research. For example, medicine and clinical psychology are usually concerned with measuring psychological and physiological strain. While organisational psychology focuses more on the organisation and tends to be interested in behavioural and psychological responses.

Psychological strain has by far received the most attention from organisational researchers. According to Kahn and Byosiere (1991) job dissatisfaction is the most frequently cited strain, followed by depression and anxiety. In reviewing the literature they list forty-three psychological responses and claim that this list is in no way exhaustive. It includes such factors as boredom, commitment, emotional exhaustion, hostility, tedium and vigour. They use the same labels used by different groups of researchers and so some overlap and duplication in their list is clearly inevitable.

Behavioural measures have also been of interest to organisational researchers (Hendrix, Ovalle and Troxler 1985, Gorman 1988, Cohen, Schwartz, Bromet and Parkinson 1991). The most common behavioural measure being job performance. This is followed by absence from the job and job turnover. Other measures include self damaging behaviours, such as

alcohol consumption, drug use and accidents in the workplace (Kahn and Byosiere 1991).

The relationship between stress and disease has received a significant amount of attention. Early organisational researchers were interested in the effect that psychosocial variables have had on coronary heart disease and mental ill health (French and Caplan 1972, Cooper and Marshall 1976, Sutherland and Cooper 1988). Although the relationship between role stressors and coronary heart disease has not been convincing (Kasl 1978, Mackay and Cooper 1987), researchers have continued to investigate this area (Matteson and Ivancevich 1979, Karasek 1979, 1990). However, the later studies suggest only inconsistent support for the more recent interaction models which attempt to explain the multivariate relationship between work environment variables and cardiovascular disease (Carayon 1993, Fletcher and Jones 1993).

Overall, physiological measures have received the least attention by organisational researchers. Fried, Rowland and Ferris (1984) reviewed physiological responses to occupational stress and concluded that three categories of response are generally measured. These are cardiovascular measures such as blood pressure, heart rate, and cholesterol, biochemical processes such as catecholamines and corticosteroids and a third category involving gastrointestinal symptoms such as peptic ulcer. In a more recent review Kahn and Byosiere (1991) outline the work that Frankenhauser and colleagues have carried out. This looked at the relationship between unpredictability, lack of control, increased workload and noise on increased levels of catecholamines. They found that catecholamines, cortisol and blood pressure were higher for men and women while they were at work. Managers showed higher physiological measures. In particular, the female managers catecholamine levels did not decline until later in the evening, while male managers blood pressure and cortisol levels were also elevated in comparison to other male employees. This work identified the problems associated with assessing physiological measures. Catecholamines levels are known to vary as a function of other factors (Fleming and Baum 1987), providing one of the many reasons for the need to use multiple measures.

Empirical Evidence Relating Work Stressors To Strain

The relationships between the various sources of stress which have been identified and individual and organisational outcomes are reported in a number of reviews (Cooper and Marshall 1976, Sutherland and Cooper 1988, Kahn and Byosiere 1991). Generally, the impact of organisational characteristics on psychological health and behavioural outcomes is well established. To a lesser extent, is the impact of organisational stressors on physiological outcomes and physical health (Mackay and Cooper 1987, Kasl 1978). However, while the factors which are identified as common sources of workplace stress may exist in the environment, this does not mean that all individuals will be affected by them. It is generally accepted that environments are not inherently strain producing, but that some individuals will either perceive them to be more adverse than others or will be more at risk to their negative effects because of other factors. The way in which individuals perceive situations may be modified by a variety of individual and psychosocial factors. The next section discusses how individual difference factors have been incorporated into occupational stress research.

The nature of individual differences has been assessed in workplace stress through personality measures and psychosocial resources. Although the early Michigan studies (cited by Kahn and Byosiere 1991) recognised that individual differences exist in the work environment, quantitative measurement of these as moderators has been relatively recent. This largely developed as a consequence of the inconsistent nature of relationships associating stressors and strains and of the limited predictive power (Kasl 1983).

The Role Of Moderators In The Stress Process

Personality and psychosocial resources have two main uses in explaining the stress process and this depends largely on the research aims of the study. It is generally agreed that their main value lies in their ability to increase the predictive relationship between the work environment and individual and organisational outcomes. The second role of individual differences in psychological approaches to stress is to clarify the nature of the relationship which exists between the person and the environment (Parkes 1994).

Personality assessment has typically involved measures of type A behaviour (Havlovic and Keenan 1991), locus of control (Parkes 1982), and hardiness (Florian, Mikulincer and Taubman 1995). Other personality measures have

been incorporated into occupational stress research, these include negative affect, depression, tension, introversion and extroversion, flexible and rigid personality types, tolerance to uncertainty (Sutherland and Cooper 1988) and tolerance to ambiguity (Frone 1990). More recent researchers have shown a renewed interest in self esteem (Ganster and Schaubroeck 1995) and self efficacy (Chwalisz, Altmaier and Russell 1992).

The psychosocial resources which have received the most attention include job experience and abilities such as social and organisational skills (Schuler 1982), job control (Karasek 1990, Daniels and Guffy 1994) and social support which has recently been given greater attention (Parkes, Mendham and Von Rabenau 1994, Frone, Russell and Cooper 1991). Empirical studies have also begun to investigate the role of coping behaviour in the work stressor-strain relationship (Trenberth et. al. 1996, Bowman and Stern 1995, Dewe 1991a, Parkes 1990).

The importance of personality and psychosocial resources within the stress process is widely recognised and these factors occur as components in one way or another, in all current models of work-related stress. However, personality can affect how people perceive their jobs as well as how they react to them (Spector and O'Connell 1994). It is possible that particular personality and psychosocial variables may be associated with specific work stressor-response combinations. Unfortunately, organisational researchers have incorporated moderator and intervening variables into empirical studies in an exploratory fashion with little rationale for the specific choice of measures (Parkes 1994). The chapter now turns toward a critique of four of the current work-related models of stress.

Models Of Occupational Stress

Keeping in mind the earlier discussion of different approaches to stress, a typical model to investigate work stress in the past would have proposed that as sources of workplace stress increased, greater psychological and physical disturbance would follow. As our understanding of stress has developed, a contemporary model of work-related stress is more likely to adopt a psychological approach which views the process of stress as some kind of interaction which occurs between the person and the environment. Generally, the simplest sequence to explain the process of stress would incorporate an environmental component, a person component and an outcome or strain component. However, within this basic framework, models of work-related

stress vary considerably in how the person and environment interaction takes place and how this leads to strain.

The first three models to be discussed represent, to some extent, the way in which the field of occupational stress has developed. They include the general work stress model proposed by Tetrick and La Rocco (1987), the person-environment model proposed by French et. al. (1982) and the job demand-control model developed by Karasek (1979). However, none of these models incorporate the processes of appraisal and coping, where individuals give meaning to events in the environment and cope with these conditions in the workplace. The fourth and final model which is presented is the transactional model, developed by Lazarus and Folkman (1984). Unlike the others, this was not developed as a model of occupational stress, but rather as a general model of the stress process. It also incorporates the psychological and coping processes which do not feature in the other stress models (Kahn and Byosiere 1991).

1. The General Work Stress Model

The general model of workplace stress as defined by Tetrick and La Rocco (1987), was developed out of the work of Kahn and colleagues at the University of Michigan. It postulates that objective work characteristics give rise to individual subjective perceptions of stress which in turn give rise to physiological, affective and behavioural responses that ultimately lead to long-term health outcomes and job related strains. This model also incorporates psychosocial resources and personal characteristics as moderators, such as control, social support and type A behaviour. These variables are proposed to have both direct and interactive relationships that produce strain. According to Tetrick and La Rocco (1987) empirical studies which have used this model have been able to establish a link between sources of work stress, such as role conflict and role ambiguity and job satisfaction. However, evidence to support the role of various moderators has not been found.

Criticisms Of The General Model

There are three general criticisms of this model. The first is that it is too simple, the identification of specific moderators and other variables is left to the user of the model. For example, in their 1987 study, Tetrick and La Rocco measured understanding, prediction and control as moderators of the perceived role stress and job satisfaction relationship. Cohen and Wills (1985), on the other hand, measured social support, although this was not found to moderate the

stressor-strain relationship. Secondly, the model fails to incorporate the cognitive processes which are important components of contemporary approaches to stress. These play a particularly important role in explaining the intervening mechanisms between objective workplace stressors and their subjective perception (Kahn and Byosiere 1991). A third problem concerns the role of coping in the stress process, which Lazarus and Folkman (1984) claim is an important moderator in the stressor-outcome relationship. This component is neglected in the model.

2. The Person-Environment Model

The Person-Environment model is another Michigan model. It is based on the theory of motivational processes, advanced by Lewin and Murray (cited in Van Harrison 1985), which is widely adopted in psychological and organisational behaviour research. There are a number of person-environment models. The most comprehensive according to Edwards and Cooper (1990) was developed by French et.al. (1982).

The fundamental hypothesis of the person-environment approach is that the individual strives to attain specific goals and states that they perceive to be worthwhile to enhance their well-being. However, in the interrelationship which occurs between the person and the environment, individuals will experience either a match or a mismatch between their successful attainment of the specific goals they desire.

In a workplace setting two specific kinds of fit are proposed. One is the fit between the demands of the job and a person's skills and abilities to meet those demands. The other is the extent to which the work environment supplies the individual with those needs and goals which they desire and perceive as valuable. The model proposes that strain occurs when the relationship between the person and the environment is incongruent (French et. al. 1982). Organisational strain will arise when the demands of a job are beyond the individual's ability, while individual strain arises when there is a misfit between the individual's desires for achievement and what the organisation offers in the way of rewards or supplies in the way of opportunities (Van Harrison 1985). A discrepancy can be either positive or negative, to take account of the fact that both over and under demand can be equally stressful for individuals. The distinguishing feature of this model is that assessment of the discrepancy between objective and subjective reality can be made as well as an assessment of the discrepancy between organisational

supply and demand and individual ability and desire.

Criticisms Of The Person-Environment Model

The person-environment approach has been widely adopted in the literature (Eulberg, Weekley and Bhagat 1988). Most studies have been concerned with the relationship between job supply-desire, fewer studies have been concerned with the job demands-ability fit (Edwards 1991). However, this approach has not had much predictive success in explaining the stressor-strain relationship beyond drawing very general conclusions. Person and environment variables have been found to be related to both individual outcomes, notably job satisfaction, but the relationship between these variables and the organisational outcome of job performance is not consistent. In addition to this, the person-environment approach has been subjected to harsh criticism (Edwards and Cooper 1990, Edwards 1991). Three main problems have been identified. The first problem is the failure of researchers to properly distinguish between the two types of fit, making it difficult to determine the extent to which each fit is able to predict specific physiological, behavioural and psychological outcomes. The second problem is that failure of researchers to distinguish between the three forms of fit: discrepancy, interaction and proportion. These represent different theoretical relationships between person and environment components and strain, and the failure to distinguish them has led to research hypotheses which are not in line with the different relationships which have been tested statistically. The third problem concerns measurement issues, in particular, component items have not been measured adequately and inappropriate statistical analysis have been carried out. Edwards and Cooper (1990) end their comprehensive review by concluding that there is as yet inadequate empirical evidence to support this model, as much of the current evidence appears to suffer from methodological flaws.

3. The Job Demand-Control Model

The job demand-control model (Karasek,1979) extends the general work stress model by incorporating a specific moderator in the stressor-strain relationship. This is the concept of control, which Karasek refers to as job decision-latitude, and which consists of decision authority and skill level. The central hypothesis in this model is that the interaction of job demands and job control will provide greater predictive power in explaining both psychological and physical health related outcomes than each would separately. Thus, when individuals are faced with high job demands and have limited

opportunities to influence these demands, i.e. low control, the result is strain.

Karasek and his colleagues conducted a series of studies measuring both psychological strain and work-related health consequences. Using large heterogenous samples and cross-sectional designs, they found moderate support for the interaction effect proposed. (Karasek 1979, Karasek, Baker, Marxer, Ahlbom and Theorell 1981, Karasek 1990).

Criticisms Of The Job Demand-Control Model

While consistent with the previous models the job demand-control model also incorporates a more sophisticated multivariate approach to stress. The concept control has long been recognised as an important variable in the process of work-related stress (Parkes 1989).

However studies that have attempted to replicate Karasek's findings have had mixed results, particularly those that have attempted to measure psychological consequences (Parkes 1991). Carayon (1993), in a longitudinal study failed to find support for either an additive or interactive effect of job demands and job control on mental or physical strain. Fletcher and Jones (1993) confirmed that demand and control were individual variables that predicted physical and psychological outcomes but they found that only a small amount of the variance could be explained by this model. Perrewe and Ganster (1989), in a laboratory experiment involving a mail sorting task, found partial support for an interactive effect, in that control moderated the demand-anxiety relationship. However, they found that control did not moderate the demand-satisfaction relationship. Karasek's findings are based on large heterogenous samples, but these have not been replicated amongst relatively small and homogenous groups of workers (Payne and Fletcher 1983, Carayon 1993, Spector 1987). Another criticism concerns the manner in which the interaction effect was tested. Cohen and Cohen (1983) claim that the most appropriate statistical technique to test a moderation effect is to use a cross-product term, but according to Ganster (1989) this was not done in either of Karasek's studies of 1979 or 1981.

4. The Transactional Model

The transactional model of stress is the final model to be discussed. Studies of work-related stress which have adopted this model have been heavily influenced by the theoretical and empirical work of Lazarus and his colleagues. This work has already been described in the foregoing

discussion. Only a handful of work stress researchers have adopted this model (Bowman and Stem 1995, Dewe 1993 1992a 1992b, Cox and Mackay 1978).

The transactional view seeks to understand how stress is a product of both the person and the environment, rather than a product of one of these components on its own, or a product of the static interaction of the two. The concept of appraisal is focal in the transactional model and, in the context of workplace studies, it is used to examine the relationship between the person and their work environment and to identify the meaning that individuals give to their work and work environment (Lazarus 1991a).

In addition to this, Lazarus and his colleagues have provided evidence to suggest that cognitive appraisals are an important predictor of how individuals cope with problematic encounters (Folkman and Lazarus 1980) and that both appraisal and coping influence short-term and long-term psychological outcomes (Folkman et. al. 1986a, Folkman et. al. 1986b). Thus, appraisal and coping have come to be accepted as important components in the stress process which can help us to understand how specific work stressors influence individual health and well-being (Kahn and Byosiere 1991).

Organisational theorists recognise the importance of the psychological meaning that individuals assign to specific work conditions (Brief and Atieh 1987, Payne, Jabri and Pearson 1988, Newton 1989). Payne et. al. (1982) pointed out some time ago that there is a need to understand the psychological interpretation of work tasks and how these tasks become challenging or threatening to individuals. Newton (1989) makes a similar point; that empirical studies need to determine how and why specific work conditions come to be problematic for individuals.

Payne et al. (1988) carried out an empirical study on the affective meaning of job demands and concluded that for many job demands there was agreement on whether they are satisfying or unsatisfying, but for some there was no consensus. In some cases, it seems that what is a threat for one individual is a challenge for another.

Brief and Atieh (1987) point out that researchers often assume a priori what conditions of work are stressful for individuals. For example, many empirical studies simply assume that role conflict and role ambiguity are job stressors.

They conclude that this is perhaps too narrow a focus, running a risk of treating an assumption as a conclusion.

In the transactional model the nature of a problematic demand can only be determined in relation to the person who experiences it. This determinant is called appraisal. While an individuals appraisal is obviously unique to them, the assumption is that patterns are likely to be focal in the way that people appraise specific work demands and other work characteristics. In particular, patterns are expected to emerge in the way in which the workplace is seen to threaten well-being. This crucial process, together with the nature of the affective and coping responses that follow particular encounters, stands in need of further investigation.

The reviews of models of work-related stress point out that limited attention has been paid to the appraisal process (Eulberg et. al. 1988, Kahn and Byosiere 1991). Where subjective perceptions and other aspects of the transactional perspective have been incorporated in work stress models (Schuler 1985, Beehr and Franz 1987, Kahn and Byosiere 1991), they have, as Shirom (1988) points out, been at the conceptual level only. At the empirical level cognitive processes which assess the transaction between the person and the environment are either not specified or they are measured only in terms of the specific person and environment components.

However, some recent empirical studies have examined the concepts of appraisal and coping in relation to work stressors and this work is encouraging. For example, Dewe (1993) has measured primary appraisal of work stressors. He asked individuals to describe in their own words a recent stressful work encounter and to identify what factors made the encounter problematic for them. The work events that people described involved interpersonal problems, task issues, work overload and personal issues. Dewe found that individuals described these stressors in ways that are qualitatively different from the encounters themselves. Consequently the concept of a work stressor could be examined in terms of the quality of a situation rather than as a work demand such as role conflict or role ambiguity. When it came to identifying why these events were problematic, individuals described factors which captured the personal meaning of the encounter. Dewe found that the stressors could be categorised in terms of how they were perceived as harmful in some way or as potentially threatening. Harm appraisals involved being seen as a difficult person or being made to feel

responsible. Threatening appraisals involved the individual perceiving a lose of credibility, feeling they may not achieve an important goal or feeling that a sense of injustice had been done to them. This approach provides a richer model in which to explore not only what conditions at work are stressful, but how they come to be stressful for individuals and consequently how this may influence how an individual deals with stressful encounters at work.

More recently still, organisational researchers who have adopted the transactional approach to investigate work-related stress have begun to examine the role that appraisal and control have on coping (Frederickson and Dewe 1996a, Frederickson and Dewe 1996b, Bowman and Stern 1995). However, there is still much to be known about how individuals appraise workplace demands, in particular, how they evaluate control resources and cope with particular work stressors.

Having examined the different approaches to stress and how these approaches relate to the various models of work-related stress, it was decided to adopt the transactional approach in this study. However, the adoption of this framework into the work context has to be carefully considered. One particular limitation which has been identified in empirical studies concerns the way in which secondary appraisal, specifically control perception, has been evaluated (Monroe and Kelley 1995) and the remainder of the chapter discusses this issue.

Limitations Of The Transactional Model

Control plays an important role in the stress appraisal and coping process (Folkman 1984), and it is also recognised as an important concept in organisational settings (Parkes 1989). It is a complex process, on the one hand it is an evaluation of the stressful situation, and therefore part of the appraisal process, but on the other hand, it is related to the coping process because it is an evaluation of potential coping efforts. Nevertheless, control perception is a process of appraisal and should be viewed as distinct from coping behaviour.

This has important implications for the measurement of situational control. Folkman (1984) pointed out some time ago that more attention needs to be paid to the measurement of control. She claims that unless we understand the personal meaning that individuals attribute to specific encounters, it is difficult to understand the many facets of the encounter that the individual targets in

their coping efforts.

Lazarus' research team focused their attention on examining the dynamic transactions of a stress encounter and on understanding the process of coping (Folkman and Lazarus 1980, Lazarus and Folkman 1985, Folkman et. al 1986a, Folkman et. al 1986b). In the context of work-related stress a limited amount of empirical work has begun to explore the appraisal and coping components from within a transactional framework. Dewe and colleagues have examined the way in which individuals cope with work stressors (Dewe and Guest 1990) and identified primary appraisals associated with work-related stressors (Dewe 1991b, Dewe 1992a, Dewe 1993).

However, little empirical research has been carried out on secondary appraisal and control perception. This is a serious limitation as it is not possible to understand the transaction process without understanding the different aspects of appraisal and their measurement. The focus of this study is therefore to explore the concept of control from a transactional viewpoint, with the aim of developing a measure which will assess control perceptions in stressful work transactions.

Chapter Summary

This chapter has looked at the different approaches which have been developed to study stress. Each perspectives has contributed to the current understanding of stress as a process. Although the transactional nature of stress is recognised at a conceptual level, empirical studies in occupational stress have paid only limited attention to the concepts of appraisal and coping, even though they are recognised as an important part of the stress process. In adopting the transactional approach to stress this study intends to address this imbalance by examining the concepts of appraisal and coping in detail, and by paying particular attention to the secondary appraisal process, which involves an examination of how individuals evaluate control mechanisms in the workplace. This central concept of control is covered in the next chapter, with particular attention paid to the situational appraisal of control and its overall role in the stress process.

Chapter 3

THE CONCEPT OF CONTROL

The previous chapter concluded by pointing to the need for further research into the measurement of situational appraisals of control. This provides the focus for the present study in establishing two goals. The first goal is to develop a measure of situational appraisals of control. The second goal is to explore the role of control appraisals within the stress process. This chapter will therefore deal with these two aspects separately.

In the first section it is necessary to understand how researchers investigating work-related stress have conceptualised control. Therefore, this section will include an overview of three broad approaches to control, focusing attention on its situational appraisal and the way in which this is currently measured. In light of this review, an alternative approach will be proposed that develops a more fine-grained measure of control that is consistent with a transactional framework.

The second section of this chapter is concerned with the second goal of the study. This involves an exploratory analysis of control appraisals within the stress process. Control has been implicated in the stress process in three different ways. Research has examined the direct effect that control has on strain, the role of control as a moderator in the stressor-strain relationship and the role of control in the coping process. A review of the current literature suggests that occupational stress researchers have paid less attention to the coping process and therefore to the role of control in coping with work stressors.

Like the concept of stress, the concept of control has been of interest to a number of disciplines, including general psychology, health psychology and organisational behaviour and used in a wide variety of life domains (Skinner 1995) and with diverse populations (Thompson and Spacapan 1991). In the 1980s organisational theorists increasingly began to recognise the importance of this concept in organisational behaviour. This recognition is reflected in the number of empirical studies which have investigated the concept of control and its relationship to stress (Carayon 1993, Fletcher and

Jones 1993, Warr 1990, Karasek 1979, 1990, Perrewe and Ganster 1989, Spector 1987, Tetrick and La Rocco 1987), as well as with other organisational outcome variables such as employee attendance, job satisfaction and job performance (Dwyer and Ganster 1991, Greenberger, Porter, Miceli and Strasser 1991, Greenberger, Strasser, Cummings and Dunham 1989, Bazerman 1982). Furthermore, the large number of reviews on the control of concept in organisational settings (Frese 1989, Ganster 1989, Fisher 1985, 1989, Jackson 1989, Johnson 1989, Parkes 1989, Sutton and Kahn 1986, Greenberger and Strasser 1986) conclude that opportunities for control have important implications for employees in terms of their psychological and physical well being, as well as for specific work-related outcomes. Empirical studies suggest that when employees have greater control this is generally always associated with positive individual and organisational outcomes (Parkes 1989).

The importance of control lies in an assumption that it has positive consequences and experiences for individuals. For almost five decades psychological theories have viewed control as an important aspect for emotional well-being (De Charms 1968, Brehm 1966, White 1959). White (1959) maintained that individuals have an intrinsic need to strive for control. In a similar vein, Brehm's (1966) reactance theory postulates that when opportunities for control are reduced the individual will feel anxiety and attempt to restore control. According to De Charms (1968), when individuals experience a sense of personal control over their environment this leads to feelings of competence and mastery, whereas in uncontrollable situations individuals are left feeling incompetent. These approaches suggest that humans have an innate desire to interact effectively with the environment, so that feelings of competence can be experienced (Skinner 1995).

Moreover, psychologists have examined the concept of control in three general ways: behavioural, actual and perceived control. While it is likely that actual control influence one's perceptions, it is generally agreed that individuals perceptions of control are a more important predictor of their behaviour in a situation (Wallston, Wallston, Smith and Dobbins 1987). It is this view of control that the study is interested in.

The Concept Of Control In An Organisational Context

The concept of control within an organisational context falls into three broad approaches (Ganster 1989, Jackson 1989, Parkes 1989). The first approach has largely developed out of a job characteristics framework and this has by far been the most popular approach taken by organisational stress researchers. This approach is concerned with the identification of aspects of the work environment that enable individuals to have control. Some organisational theorists view these characteristics as objective measures of control (Sutton and Kahn 1986), while others are more concerned with employees' subjective perceptions of these work characteristics (Spector 1987). The second approach is influenced by psychological theory and treats control as an individual difference variable, such as a general belief that an individual holds in relation to their expectations to obtain outcomes. This approach tends to view control as a relatively stable characteristic. More recently a third approach has been developed in work stress research. This approach adopts a subjective perspective and emphasises how an individual perceives control in terms of specific situational appraisals. Although situational perceptions may also be influenced by an individual's general beliefs (Folkman 1984), this approach is concerned with an individual's perceived control of a specific situation.

1. Control As A Characteristic Of The Work Environment

The contextual nature of the organisational setting has allowed organisational researchers to focus on specific work characteristics that enable individuals to have control in the workplace. Two particular concepts associated with control in the workplace have received the most attention from researchers. These are participative decision making and role autonomy (Ganster 1989, Jackson 1989).

Participative decision making refers to the "extent to which employees are given opportunities to control or influence their job environments" (Jackson 1989 p. 27). Specifically it emphasises input in decision making and is suggestive of a higher level of communication and information flow, particularly between a worker and their supervisor. Jackson (1989) identifies three ways in which participative decision making can be measured. Firstly, she distinguishes between formal and informal participation. Formal opportunities occur through organisational bodies such as unions, councils

and committees. The organisational hierarchy also allows some individuals to have opportunities for control through the status of their position. In contrast with formal opportunities are those informal opportunities for control that may arise through job expertise and skill. Expertise or skill can increase participation over and above formal status within an organisation. Secondly, Jackson (1989) refers to the notion of forced versus voluntary participation and points out that few studies of participation make this distinction. Thirdly, she refers to the direct and indirect ways that individuals have opportunities to be involved in decision making. She suggests that specific bodies and organisations provide indirect access to decision making within organisations, but that few employees will have this access. These distinctions enable us to see that control is not only through specific work domains, such as opportunities to make decisions (Ganster 1988) but further how people can access these domains to gain control.

While participation is about opportunities for involvement with others, role autonomy is about employees having control over their own work behaviour, such as the order of tasks, the pace of work, flexible work hours and goal setting (Jackson 1989). This concept has been popularised by Hackman and Oldman (1975) who define it as "the degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out" (p162). Role autonomy has been identified as one of the key characteristics that influence motivation, job satisfaction, absenteeism and turnover (Jackson 1989).

Thus, much of the empirical literature concerned with control in the workplace has investigated this by using a measure of employee participation in decision making and role autonomy. Popular measures of participation have been developed by Vroom (1959) and Siegal and Ruh (1973). Studies that investigate role autonomy have mostly done so by using the Job Diagnostic Survey (Hackman and Oldham, 1975). However, there has recently been a renewed interest in the measurement of control. These researchers claim that viewing control in the workplace only in the form of role autonomy and participation is too narrow a focus (Ganster 1989) and that over the last decade this narrow focus has had negative implications for the development of the area (Jackson, Wall, Martin and Davids, 1993).

This renewed interest in the measurement of control led Jackson et. al. (1993)

to focus their attention on defining specific aspects of role autonomy. They claim that autonomy over work tasks has been conceptualised too broadly and can be defined in two distinct ways, timing control and method control. Timing control refers to autonomy to determine the scheduling of tasks, while method control refers to autonomy in how work tasks are to be carried out. Factor analyses were carried out which support the distinction between method and timing autonomy and the reliability of these scores appears to be acceptable.

In reviewing the concept of control, Ganster (1989) identified seven different facets of worker control including work tasks, work pace, work schedule, physical environment, decision making, other people and mobility to leave the job. He went on to develop two scales of control: a nineteen item scale incorporating a number of the control facets just identified, and a five item scale intended to measure the extent to which an employee found their work and workplace predictable (cited in Smith, Tisak, Hahn and Schmieder 1997). A factor analysis of these twenty-four items suggested two dimensions, a general factor and a measure of predictability, however, the predictability items demonstrated low internal consistency.

In a recent empirical study Dwyer and Ganster (1991) revised this scale and developed a single dimensional scale of control made up of a subset of the general items and the predictability items. These twenty-two items covered control over a variety of tasks performed, the order of task performance, control over the scheduling of breaks, control over the pace of work, the extent to which the employee influences policies and procedures in the workplace, control over the physical environment and the degree of predictability that the employee perceives in relation to their work. However, they did not carry out any analysis to support the claim that the scale was unidimensional. More recently Smith et. al. (1997) carried out factor analytic work on these items and they conclude that there are in fact two dimensions of control: general control and predictability, which supports Ganster's earlier findings.

This work is encouraging for a number of reasons. It extends the concept of control and the way in which employees can have a sense of control beyond the concepts of role autonomy and participation. In addition to this, Ganster's work on predictability introduces opportunities for exploring the relationship between predictability and control, though organisational researchers have as yet not begun to examine this. Few measures of workplace control measure the sense of control which individuals gain from these work aspects

(Schwalbe 1985) or whether predictability assists individuals in maintaining a sense of control. Predictability has been recognised in psychological theories of stress in the general literature for some time (Averill 1973, Miller 1979). Finally, renewed interest in control has led researchers to identify new facets of this old concept.

It is clear that the concept of control within an organisational context needs to be viewed from a range of perspectives, that reflect the multi-dimensional nature of this concept. If control is to continue to be recognised as an important concept within the stress process then new measures of control need to be developed in order to identify the control mechanisms which are meaningful to individuals (Schwalbe 1985). All too often a control assessment will ask an individual the extent to which they have control over certain workplace parameters, but neglect to ask what the control mechanisms are which are important to the individual and which gives them their characteristic sense of control.

As well as examining specific work characteristics in terms of the control they hold for individuals, researchers have also been interested to examine their generalised beliefs about control. This aspect of control will be discussed next.

2. General Beliefs About Control

General beliefs about control refer to stable characteristics of an individual's control perceptions. According to Skinner (1995) an individual's beliefs about control, their interactions with the environment and their successes and failures to obtain competence, make up an ongoing and self-regulatory cycle, where the motivation to satisfy a need for control is enacted. Four major psychological theories about control have been used to explain how perceived control is associated with individual motivation and behaviour: locus of control, causal attributions, self-efficacy, and learned helplessness.

Locus of control refers to an individual's general beliefs about expected outcomes. Originally conceptualised by Rotter (1966) the locus of control scale measures the extent to which an individual attributes general outcomes to be the result of a person's own resources and initiatives (internal locus of control) or the result of fate, luck, chance or powerful others (external locus of control). Locus of control is regarded as a relatively stable characteristic of general beliefs which Rotter argued would be most influential in ambiguous situations (Folkman 1984).

Weiner (1986) built on the locus of control findings. According to Weiner control beliefs are defined in terms of four dimensions, internality, stability, controllability and intentionality, and he claimed that individuals attribute the cause of events in terms of these four dimensions. Thus, while locus of control is concerned mainly with how individuals will respond to future events, this approach focuses on how individuals view significant past events.

Bandura (1977, cited in Skinner 1995) noted that general control beliefs which are about individual judgements of the degree of control that people in general are capable of, need to be contrasted with self judgements, which are about an individual's perception of their own ability to act to obtain desired outcomes. For example, an individual may believe that people in general are usually able to control outcomes, but may not believe that they themselves can control the outcome of a situation.

The theory of learned helplessness is concerned with how individual behaviour is influenced by exposure to uncontrollable situations (Seligman 1975, cited by Peterson, Maier and Seligman 1993). Control in this paradigm is viewed as a response that modifies a stressful situation in some way, whereas in the absence of a response, the stressful situation is said to stay the same. When individual attempts at control are thwarted, feelings of helplessness will result.

Measuring Generalised Beliefs In An Organisational Context

Assessment of control beliefs in organisational research has largely been made using the locus of control scale. However, exploration of the relationship between locus of control and the degree of stress symptoms experienced has not been all that fruitful. Amirkhan (1990) claims that the inconsistent findings relating control beliefs to stress symptoms may arise from a misunderstanding of the theoretical nature of the locus of control concept. Rotter developed the locus of control instrument to examine behaviour across a range of situations (cited in Amirkhan 1990) and was therefore not designed to predict specific situational behaviour. Thus, in response to the problems associated with the locus of control, researchers have developed sphere-specific or multi-dimensional scales. For example, Spector (1988) has developed the work locus of control scale, a sixteen item scale which measures control beliefs relevant to the work context. This scale has been shown to have acceptable levels of internal consistency and criterion validity. According to Furnham and Steele (1993) specific measures are probably of greater use and more

appropriate for measuring control beliefs in specific domains.

Thompson and Spacapan (1991) state that it is necessary to distinguish between contingency beliefs which refer to "judgements about the extent to which people in general can obtain desired outcomes through individual action" and self-efficacy beliefs, which they refer to as competency beliefs "perceptions of one's own ability to enact the necessary action to obtain the outcome". Researchers often imply the theoretical distinction but fail to measure these aspects separately (Terry 1994). Organisational researchers have recently shown interest in the self-efficacy concept (Schaubroeck and Merritt 1997, Chwalisz et. al. 1992) but, little attempt has been made to incorporate Weiner's work on causal attributions into organisational research investigating the influence of control.

In summary, the evidence suggests that control beliefs act both independently and interactively with job characteristics in predicting work-related outcomes. However, this has been of limited value, because control beliefs have not explained much of the variance in organisational outcome scores (Parkes 1989). More refined measures of control beliefs are now available for researchers to use, such as the work locus of control scale (Spector 1988). These may prove to be more sensitive measures of control beliefs which will enable researchers to examine more closely the relationship between generalised work control beliefs, situational control perception and the kinds of work conditions in which these beliefs are relevant to stress outcomes.

3. Situational Appraisals Of Control

In contrast to the view of control as a general belief held by an individual, either about themselves or others outcome expectancies, some researchers have been concerned to look at the way that individuals make control appraisals of specific situations. This approach has largely been influenced by the transactional theorist Richard Lazarus and his colleagues (Lazarus and Folkman 1980), as described in Chapter 2. Transactional theory is concerned with both generalised and situational control in the context of specific stressful incidents. However, in a specific situation perceived control is believed to be determined by the appraisal of control within the situation rather, than by the general control beliefs of the individual (Folkman 1984), which are thought to be more influential in ambiguous situations.

Situational appraisals of control are conceptualised as part of the secondary

appraisal process. Folkman (1984) defines situational appraisals of control as "products of the individual's evaluations of the demands of the situation on the one hand, and his or her coping resources and opinions and abilities to implement the needed coping strategies on the other" (p842). Desire for control is influenced by primary appraisal and the specific situational context. According to Folkman (1984) when an encounter is important, the desire for control is greater, so that the 'controllability' of a situation becomes more important. Until recently, this approach has received little attention from organisational theorists.

Situational appraisals of control have tended to focus on how individuals can change the outcome of a situation by changing or dealing with circumstances in the external environment. This view has developed out of the research on individuals' control beliefs, discussed earlier, that is concerned with individuals outcome expectancies. Rothbaum, Weisz and Snyder (1982), on the other hand, offer a much broader definition of personal control as a two-dimensional process. Primary control refers to actions taken to change a situation or outcome with a focus on external events. Secondary control refers to indirect ways or inward behaviours that individuals use to influence the situation or bring themselves into line with the situation. For example, to attempt to "flow with the current" (ibid p.8). This distinction is particularly important because it identifies an aspect of control which does not focus on external control mechanisms. Instead it allows for an internal response that individuals may perceive as salient for them in a given situation. According to Thompson and Spacapan (1991) individuals' report that they are able to maintain a sense of control even when external outcomes can not be changed, and these secondary control mechanisms are therefore particularly relevant in natural settings where low outcome control exists. This conclusion is supported in the literature, which suggests that objective control may not always account for an individual's sense of control (Schwalbe 1985). Indeed, control may have its most powerful influence when it is internally focused.

The distinction between primary and secondary control can be found in the dynamic control model proposed by Greenberger and Strasser (1986). This model assumes that an individual's self-perception of control is created from salient situational events and they will select specific responses to enhance their control, depending on their individual desire for control. Perceptions of control are said to be influenced by both organisational and individual variables, both of which change over time. This model emphasises the

cognitive processes that motivate individuals to seek control. When a situation is important to an individual, then they will evaluate the extent to which their desire for control is consistent with the amount of control that they actually have. Thus, in contrast to some psychological theories e.g. (White 1959), this model does not view control as a primary motive. Most individuals will probably prefer control over lack of control. However, they may not always desire it in every situation, more control can bring unwanted responsibility (Jackson 1989).

Greenberger and Strasser (1991) adopted this model in an empirical study and found that when individuals are unable to directly influence the source of an incident they may choose to gain control indirectly. This may take the form of a substitute action, gaining the support of others, adjusting to the situation or some other response. These kind of responses represent the secondary control mechanisms which Rothbaum et. al. (1982) hypothesised about. Unfortunately, the empirical studies which have adopted this model have tended to concentrate on the association between personal control, job satisfaction and morale (Greenberger and Strasser 1991) with less emphasis on health, well-being and stress.

All this is evidence that control is a much more complex part of the secondary appraisal process than it may first appear. Firstly, situational appraisals of control may involve distinctions between primary and secondary control. Secondly, the control mechanisms which employees may use in their workplace can differ in terms of the level of control desired. Thirdly, in carrying out empirical research, it is necessary to identify the relevant control perceptions of an individual, before their level of perceived control is assessed. That an individual has objective control over a workplace variable is not relevant to their own sense of control, unless their control perception recognises it as such.

In summary, the literature on work-related stress has viewed control from three perspectives: in terms of the work characteristics within an organisational setting, as a general belief, and as a control perception that is part of a larger situational appraisal. From the transactional viewpoint of this study the concept of control is recognised as one of importance. It is placed within the process of secondary appraisal and it is therefore now necessary to focus the discussion on current measures of situational appraisals that have been used in transactional stress studies.

Measuring Situational Appraisals of Control

A variety of approaches based on the work of Folkman and Lazarus (1980) have been used to measure control as part of the secondary appraisal process. Folkman and Lazarus used four statements to assess secondary appraisal. They asked individuals to rate using a five point scale, the extent to which a situation was one: that you could change or do something about, that must be accepted or got used to, that you needed to know more about before you could act or in which you had to hold yourself back from doing what you wanted to do. A number of studies in work-related stress have adapted this procedure. For example, Dewe (1991a) added to the above items, two statements relevant to the work setting: one where the organisational bureaucracy made it difficult to deal with and one where if you dealt with it in the way that you wanted to it would have made things difficult for you, and then asked individual's to choose from amongst these items the one that best reflected their situational control. Bowman and Stern (1995) asked individuals to rate using a seven point Likert scale, the extent to which a situation had to be accepted or could be changed. Frederikson and Dewe (1996a) asked respondents to indicate how much control they felt they had over the events they experienced, using a five point scale from no control to a great deal of control.

The problem with these assessments of situational appraisal is that they don't really tell us much about the individual's perception of what the control was over or of how much and what type of control they may have desired. In addition to this, single item questions are likely to lead to measurement error. It has also been suggested that the approach of Folkman and Lazarus (1980) may confound control perception with coping behaviour (Monroe and Kelley 1995).

The transactional framework proposes that the appraisal process must take into account the relationship between the person and the environment that is perceived as meaningful to the individual (Holroyd and Lazarus 1982). Thus, secondary appraisal processes should be concerned with the control options which the individual thinks are relevant to a given situation and meaningful to them. Folkman (1984) suggested that future directions for the measurement of situational appraisals of control must be directed towards examining what it is that individuals have control over. She went on to say that unless we understand the personal meaning of control that individuals attribute to specific encounters, it is difficult to understand the facets of the encounter that

an individual targets their coping efforts toward. However, she also claims that situational appraisals of control are difficult to evaluate in real life situations since their meaning is context bound. As Averill (1973) claims, "about the only general statement which can be made with confidence is that the stress inducing or stress reducing properties of personal control depend upon the meaning of the control response for the individual; and what lends a response meaning is largely the context in which it is embedded". Others agree that we need to identify what control is over (Amirkhan 1990). Yet, little empirical work has been done to try to measure control appraisals.

Traditional control definitions emphasise control mechanisms which enable individuals to change the outcome of a situation. However, Rothbaum et. al. (1982) suggest that meaningful conditions or factors which an individual can have control over can involve actions taken to change the environment, as well as internal efforts which can indirectly assist individuals to adjust to stressful situations. The distinction between primary and secondary control is particularly important when measuring control perceptions over specific situations. Firstly, it allows for a wider range of response that individuals may perceive as salient for them in the given situation (Thompson 1981) and secondly, it allows assessment to more carefully examine the targets on which the individual focuses their efforts to gain control.

According to Thompson and Spacapan (1991) people can maintain control even when they are unable to objectively change the outcome of a situation. It is possible to think of this control process in terms of adaptation rather than external adjustment or change. In the work setting it is possible to adjust or change a situation through external control mechanisms, such as participation in decision making and access to information, but equally it is possible for individuals to have control by adapting to an unchangeable situation. In these circumstances individuals have access to a range of internal self-control behaviours which govern how they react to external events (Rosenbaum 1993).

In conclusion, adoption of the transactional framework requires that measures of control need to examine individuals perceptions of control over specific situations, to pay attention to those aspects which are relevant and meaningful to the individual (Schwalbe 1985) and that they therefore should look for both primary and secondary control mechanisms as defined by Rothbaum et. al. (1982). Only in this way is it going to be possible to identify what the important

targets of control are in a given situation, as well as to assess the extent to which external variables do, infact act as control targets that carry significance to the individual.

The First Objective In The Study

The first objective in the study is to develop a more fine-grained measure of control as a component of the secondary appraisal process in work-related stress. To meet the requirements outlined above, this means that a control scale needs to be developed which can measure the workplace phenomenon which are meaningful and relevant to individual control mechanisms. In order to achieve this, a control scale was developed in two stages. The next chapter, describes the Stage 1 data collection exercise which consisted of open-ended questions which asked employees to describe in their own words what control means to them, and how they gain a sense of control in the workplace. The purpose of the Stage 1 questionnaire was to collect information on control perception that would form the basis for a more extensive measure of control that would be incorporated into a study of work-related stress conducted in Stage 2. Chapter 5 describes the Stage 2 data collection which examined control by taking a situation-oriented approach to stress. However, before moving onto the details of the research strategy, the remainder of this chapter will examine the roles that control plays within the process of stress. The purpose of this review is to establish the second objective in the study.

The Role Of Control In The Stress Process

It has generally been proposed that greater control is associated with less psychological distress. However, Averill (1973) claims that control can sometimes increase distress, rather than decrease it and that a lack of objective control can be associated with less distress. This claim originates from early experimental studies which artificially manipulated control and measured it objectively in terms of an individual's ability to control the outcome of a situation. Averill found that individuals who were placed in the no-control condition often reported afterwards that they had successfully attempted to control their experience of pain and were thus less distressed. The obvious conclusion here is that beliefs and attitudes towards control are often more important than actual ability to influence events (Fisher 1989) and this experiment vividly illustrates that how we measure control depends on our understanding of what control means to an individual and clearly will effect the relationship between control variables and other components of the stress

process. In short, the way that control perception effects distress or strain is not simple. This section therefore explores a number of different theories that have been put forward to explain the role of control in the stress process.

Generally, researchers in occupational stress have examined this in three ways (Frese 1989, Ganster 1988). Firstly, control can act directly to reduce distress or strain. Secondly, control can act to moderate the impact of stressors to reduce strain. Thirdly, control has been proposed to have a role in the process of coping with stressors. The interest in control from an organisational perspective has been to a large extent influenced by the failure of empirical studies to adequately explain the relationship between various organisational stressors and well-being. Consequently the main role that control has played in work-related stress models has been as a moderator in the stressor-strain relationship. However, more recent research has begun to examine its role in the coping process.

1. The Direct Effects Of Control

Organisational research which has looked at the direct effect of control on individual and organisational outcomes has tended to focus on variables such as job satisfaction and job performance. Spector (1986) found that employees who perceived greater levels of participation and role autonomy had greater job satisfaction, commitment, motivation and involvement in their work and they performed better. Employees also reported fewer emotional and physical symptoms and experienced less role ambiguity and role conflict at work. More recently, Wagner (1994) examined the effect of participation on job satisfaction and claimed that associations between participation in decision making, job satisfaction and job performance, while statistically significant are generally weak. He concludes that using participation as a means to influence either job performance or job satisfaction can not be claimed to have much practical use.

It has been suggested that while employees may perceive greater levels of participation in relation to organisational policies and procedures, this may not accurately reflect their perceptions of control (Spector 1986). Unless participation enhances an employee's perception of personal control the positive effects that are proposed for it may not exist. To take account of this, Greenberger et. al. (1989) assessed personal control in the workplace by measuring desired and possessed control using an eleven item scale developed for this purpose. The items reflected how much control was desired, as well as possessed, in relation to an employee's influence and

freedom of action in a variety of work-related areas. Controlling for individuals beliefs about control, they found a significant relationship between perceived control and job satisfaction and performance. This has two implications for the measurement of control. Firstly, that control needs to be measured in such a way that it is perceived to be meaningful for employees. Secondly, control is likely to be more complex than a simple linear additive model (Parkes 1989).

Setting these issues concerning measurement aside, we need to look at other roles that have been proposed to explain how control is related to the stress process. The two other explanations of how control effects the stress-strain relationship are discussed next.

2. The Moderating Effects Of Control

Two explanations have been proposed to examine the role of control as a moderator in the stress-strain relationship. Both maintain that control acts to moderate the stress-strain relationship. Thus, under this view control does not reduce an objective stressor, rather it acts in such a way as to buffer its effect and thus reduce negative outcomes. The first approach, due to Miller (1979) views control as an individual difference variable, while the second approach, due to Karasek (1979) examines the extent to which having control over certain work characteristics alleviates the influence that stressors have on strain.

According to Miller (1979) control reduces stress because a controllable event is perceived to be less stressful than an uncontrollable one. This is because the individual attributes the cause of their relief to something they can do to change an adverse situation. In this way a perceived belief that one has control is seen to moderate the effect of objective and subjective stressors in producing strain. Older theories have equated predictability with control. Predictability acts as a warning signal in the presence of adverse situations and therefore it is believed that individuals prefer predictable situations which allow them to relax (Miller 1981) and this theory is known as the Safety Signal Hypothesis. Miller (1987) extended this view of control by introducing a personality component called control seeking behaviour that is measured by the Miller Behavioural Style Scale (MBBS) She found that individuals differ in terms of their information seeking styles. This modified hypothesis, referred to as the Blunting Hypothesis, suggests that individuals are either monitors who have a tendency to keep alert to the threatening components of a situation and to seek information regarding stressors, or blunters who have a tendency to

distract themselves from stressors, regardless of their environmental circumstances. Within the context of work-related stress only Daniels and Guppy (1992) appear to have tested this hypotheses. They examined the effect of control beliefs using the work locus of control scale and information seeking style using the MBSS Scale. They found that both forms of control had significant main effects on general well-being but that the interactive effects which are proposed by the hypothesis were not supported.

The second main approach to propose that control acts as a moderator to reduce strain has largely developed out of the work carried out by Karasek (1979) that was outlined in Chapter 2. This has by far been the most popular approach in work-related stress to examine the relationship between control, stressors and strain. Karasek (1979, 1990) claimed that stressors alone do not lead to illness and psychological distress. He proposed that the interaction between job demands and job control would better predict the relationship between stressors and strain. However, as has already been pointed out, the evidence to support this model has been mixed at best.

One of the reasons that findings have inconsistently reported support for this hypothesis may be due to the way in which control has been measured (Carayon 1993). Karasek defined job decision latitude as "the working individual's potential control over job-related decision making" (1979, p 697). However, this was operationalized in various ways: as decision authority and intellectual discretion in the USA sample, and as educational level and the extent to which the job was repetitive or monotonous in a Swedish sample. It is not at all clear whether educational level measures control at all (Ganster 1989). It has also been suggested that job decision latitude is confounded with other related concepts, such as job complexity (Ganster 1989). Carayon (1993) points out that the studies which have attempted to replicate Karasek's findings have all assessed control in slightly different ways. Warr (1990), Carayon (1993) and Fletcher and Jones (1993) all measured discretion with items derived from Karasek's study and found no evidence of interactive effects. Parkes (1991) used similar measures as well as a measure of locus of control and reported that the interactive hypothesis occurred for externals only (individuals who reported external control beliefs), and only then in the relationship between stressors and mental health, not in the relationship between stressors and absenteeism. The interactive effect was not found at all in individuals who reported internal control beliefs. Interestingly enough studies which have assessed control differently to Karasek have reported

partial support for the interaction hypothesis. For example, Dwyer and Ganster (1991) conducted a quasi-experimental study where they manipulated control by giving individuals in their experiment different sets of instructions to perform a variety of tasks. They also made use of self report measures of perceived control, where individuals filled out self reports after they carried out the tasks.

More recently researchers have combined a number of different measures of control in their studies. Spector and O'Connell (1994) and Daniels and Guppy (1992) have used the work locus of control scale to obtain a domain specific measure of control beliefs and combined this with self report measures of control over different work characteristics, to examine the interactive effects of job stressors and job control.

Tetrick and La Rocco (1987) measured understanding, prediction and control as moderators of the job stressor - strain relationship, based on Sutton and Kahn's (1986) proposal of control as a moderator. They measured two outcome variables: job satisfaction and psychological well-being and found that understanding and control moderated the relationship between job stressors and job satisfaction, but prediction of work events did not. However, none of the proposed moderators had a significant effect on the relationship between job stressors and psychological well-being and since the form of the interactions was not presented in the article we do not know whether they fitted Karasek's model.

In a second study Daniels and Guppy (1994) investigated the influence of several control dimensions in the stress process: participation in decision making, role autonomy and control beliefs. They found that control beliefs had a significant main effect on psychological well-being and a significant three-way interaction with role autonomy in the relationship between job stressors and well-being. Autonomy had no direct effects on well-being and participation in decision making had neither main or interactive effects on well being. This supports Warner's (1994) claim, at least in so far as it is currently being measured, that the role of participation has little practical use. At the same time, unless we are willing to examine the extent to which particular facets of control are meaningful to the employee their practical use in predicting the stressor-strain relationship may also be of little value.

In summary, the studies which have examined the role of control as a moderator in the stressor-strain relationship have reported inconsistent

findings and no agreement on its moderating effect has therefore been reached. However, measuring different facets of control in a single study seems to be the most promising direction which researchers have taken. This supports the multifaceted conceptualisation of control which the literature advocates. It is only by examining the different facets of control within a single study that we may come to sufficiently, if not fully understand this complex concept. Firstly, this may help us to examine how the different measures of control are related to one another and how they may each influence the stress-strain relationship in different ways. Secondly, this may help to capture a measure of control which takes account of its significance to the individual. Thirdly, this may help to explain the moderating role of control in a satisfactory way.

3. The Role Of Control In The Coping Process

The third approach to the conceptual integration of control in the stress process has been to examine its role in the coping process. Control, along with a number of other factors, has been proposed to influence both coping behaviour and coping effectiveness, but apart from those researchers who have adopted the transactional model to investigate work-related stress (Dewe, Cox and Ferguson 1993), few empirical studies have examined the coping process until quite recently. This is in sharp contrast to the general stress literature where coping behaviour has been an important area of research for some time.

In the transactional model both primary and secondary appraisal processes influence coping behaviour and are considered to be more influential in the coping process than the objective characteristics of a stressful event (Folkman and Lazarus 1980, Folkman et. al. 1986b). This study is interested in the process of secondary appraisal and how control perception influences coping behaviour and coping effectiveness, and our attention will therefore focus on this aspect. In transactional theory, both generalised and situational control perceptions are relevant to the assessment of a stressful incident (Folkman 1984). However, in a specific situation, perceived control is believed to be determined predominantly by the perception of control within that situation rather than by the individual's general control beliefs (Folkman 1984). These are thought to be more influential in ambiguous situations.

To restate the definition of a secondary appraisal: a situational appraisal of control consists of a person's perception of the possibilities for controlling an

encounter. "They are products of the individual's evaluations of the demands of the situation on the one hand, and his or her coping resources and options and abilities to implement the needed coping strategies, on the other" (Folkman 1984 p.842.). Monroe and Kelley (1995) point out that, control perceptions, while closely linked with coping behaviour should be viewed as distinct aspects of the coping process. Control perceptions are the evaluations of what can be done about the situation and the control perception characterises how the individual reaches these decisions. Coping behaviour characterises what is done as a result of these evaluations. Control is about determining possibilities, what can be done; coping is about action, what is done, and it is recognised that the coping efforts that are used to deal with a stressor can be cognitive as well as behavioural (Folkman and Lazarus 1980).

The first part of this chapter focused on the measurement of situational control and concluded with the view that it is essential to measure what control is perceived to be over rather than to merely assess in a non-specific way an individual's general control perception of a situation. Thus a more fine-grained measure of control perception was identified as an important goal of the study. The hypothesis is that this will be able to capture important aspects of the relationship between control and coping behaviour in the work environment and thus provide us with a greater understanding of how an individual's having a sense of control is related to their coping behaviour and its effectiveness.

a. Factors Which Predict Coping Behaviour

Setting the issue of measurement aside, research has focused on examining those factors which predict coping behaviour (e.g. Parkes 1984, 1986, Holahan and Moos 1987, Carver, Scheier and Weintraub 1989, Havlovic and Keenan 1991, Chwalisz et. al. 1992, McCrae 1992, Schwartz and Stone 1993, Terry 1991, 1994). According to the transactional model of the stress process situational appraisals are important determinants of coping behaviour (Lazarus and Folkman 1984), although there is evidence that other factors play a significant role in coping behaviour. These include the objective nature of the situation (Mattlin, Wethington and Kessler (1990) and individual differences (Parkes 1986, Havlovic and Keenan 1991, Terry 1994).

The significance that the transactional model places on situational appraisal as a determinant of coping behaviour has led researchers to measure appraisal of a stressful situation in different ways. Stressors have been

appraised in terms of the level of perceived intensity, the factors that make a situation stressful, how important the situation is to the individual, the chronicity of the situation, perceived self efficacy to deal with the situation, and perception of control in the situation (Folkman and Lazarus 1980, Parkes 1986, Forsythe and Compas 1987, Peacock, Wong and Reker 1993, Terry 1994).

Of these situational appraisals, control perception has by far received the most attention. According to appraisal theory (Folkman and Lazarus 1980) problem-focused coping will be used in situations where individuals perceive possibilities for control, whereas situations that hold few possibilities for change will be associated with emotion-focused coping. Carver et. al. (1989) have also found evidence which supports this analysis examining coping behaviour beyond problem and emotion-focused coping. They found that active coping, planning, suppression of competing activities and seeking social support for instrumental reasons, were used to a greater extent by individuals who reported that their situation was amenable to change than by individuals who reported that the situation had to be accepted. In contrast the individuals who could not change their situation used greater acceptance and denial coping. Although this study supports Folkman and Lazarus' proposal a number of other empirical studies have reported finding only partial support.

Forsythe and Compas (1987) examined individuals reports of major and daily stressor events. They found that individuals reports of major events that were appraised as controllable were associated with greater use of problem-focused coping. However, the use of emotion-focused coping did not differ in terms of their control perceptions. When individuals reported daily stressful events neither problem nor emotion-focused coping was related to control perceptions.

Peacock et. al. (1993) examined control appraisals and their relationship to coping behaviour by asking respondents to rate the extent to which the situation was dependent on factors under their control and the extent to which the situation was dependent on factors uncontrollable by anyone. They found that appraisal of a situation as under their own control significantly predicted greater problem-focused coping. When individuals reported that the situation was uncontrollable by anyone they were more likely to use existential coping strategies, which are aimed at finding purpose and meaning in the things that happen. There was no relationship between either of these control appraisals

and the use of emotion-focused coping, instead they found that emotion-focused coping was predicted by threat appraisals.

Terry's (1994) study examines both stable and situational factors in predicting coping behaviour and finds further evidence which only partially supports the appraisal theory. She found that high levels of control were related to greater instrumental action and greater cautiousness, which are forms of problem-focused coping, and to greater self-blame coping, a form of emotion-focused coping. When respondents reported limited potential for control they were more likely to use greater social support and minimisation coping strategies. The study also found that control appraisal was not associated with escapism, another form of emotion-focused coping.

Taken together these empirical findings demonstrate that control perceptions are not significantly related to all forms of coping behaviour, nor in the direction proposed. The evidence generally supports the view that greater control is related to forms of problem-focused coping, but there is less evidence supporting the proposal that limited control is associated with emotion-focused coping. Compas, Banez, Malcame and Worsham (1991) point out that while perceptions of control are more than likely linked to problem-focused coping, other aspects of the appraisal process, such as emotional arousal are perhaps associated with emotion-focused coping. Folkman (1984) proposes that appraisals of threat and situational emotions should increase emotion-focused coping. The few studies which have examined predictors of coping behaviour in the workplace have not examined affective components of the appraisal process to test this hypothesis and this is therefore an area in which more empirical research is needed.

b. Factors Which Predict Coping Effectiveness

Researchers have also paid attention to factors which predict effective coping. A considerable amount of evidence suggests that problem-focused coping is effective in a work setting (Latack 1986, Kroeske, Kirk and Kroeske 1993, O'Driscoll and Cooper 1996) and that this type of coping is more effective than emotion-focused coping, which has been associated with greater psychological symptoms (Bowman and Stern 1995). However, the evidence regarding the effectiveness of emotion-focused coping within the workplace is not altogether clear.

Folkman and Lazarus (1980) argue that assessment of effective coping should

not be identified with a particular coping strategy per se. Rather they propose the goodness of fit hypothesis, which suggests that effective coping occurs when coping behaviour is in line with an individual's control perceptions. In general problem-focused coping will be more effective when situations are appraised as amenable to change than when situations are viewed as having to be accepted. In contrast emotion-focused coping is more appropriate when an individual perceives that there is little they can do to change the situation. However, empirical findings in the general stress literature have only partially supported this hypothesis (Folkman et. al. 1986b, Conway and Terry 1992, Peacock et. al. 1993).

Only one study, carried out by Bowman and Stern (1995), tested the goodness of fit hypothesis in the context of work-related stress. In this study three coping scales were used: problem solving which represents problem-focused coping and reappraisal and avoidance coping which conceptualised emotion-focused coping. Their study did not support the hypothesis in predicting general health and mood, only coping behaviour had a significant main effect on the dependent variables. They found that avoidance coping was related to greater negative affect and reports of affective and somatic symptoms, while problem-reappraisal and problem-solving coping predicted greater positive affect. In further analyses which examined the relationship between control, coping and self-reported coping effectiveness, they found that all three types of coping had a significant relationship with effectiveness in controllable situations. Problem solving and reappraisal were effective in controllable situations, reappraisal was significantly effective in low control situations, however, problem-solving was not related to low control situations. They also found that use of avoidance coping was reported to be ineffective in both controllable and uncontrollable situations. The literature supporting this hypothesis is therefore inconsistent.

It would appear that empirical studies of work-related stress have not sufficiently examined the factors which predict coping with work stressors, nor effective coping in the work place. Using the situational control scale that was developed the second objective of the study is to explore the relationship between situational appraisals and coping behaviour and the relationship between control perception and coping behaviour in predicting coping effectiveness. The main study, which is described in Chapter 6, examines, the contribution of primary appraisal, control perception and situational feeling and emotions as predictors of coping behaviour. It also examines the

influence of control perception and coping behaviour in predicting perceived coping effectiveness. The aim is to achieve a more complete understanding of the complex role of control in the work stress process.

Chapter Summary And Study Objectives

A number of themes emerge from this review of control in work-related stress. Firstly, it appears that although recent work on the measurement of control has begun to show potential, more work is still necessary in this area Secondly, that while there is considerable variation in the way that control has been measured, this is a natural reflection of the multifaceted conceptualisation of control in the literature. Thirdly, this conceptualisation seems to be moving away from an interactional view towards a transactional view, which, by taking account of an individual's desires for control as well as their subjective perception of control, takes a fuller account of the relationship between the individual and the environment.

Finally, it is proposed that an approach that derives a list of factors that classify aspects of control that are meaningful to the individual when they make control evaluations, will provide a robust measure of control over specific factors in stressful work-related transactions. This scale can then be used in the main part of the study, Stage 2 of the project, where an exploratory analysis is carried out to examine the role of control in the coping process. The methodology that was used to achieve these goals is the focus of the next chapter.

We have also seen how important it is to place the control concept within a wider theory of the stress process. The transactional theory of stress recognises that control perception plays an important role in the appraisal process, and it is only through this process that a situation comes to be experienced as stressful for an individual. It is only therefore to be expected that control perception also influences subsequent coping behaviour. It is this importance of control, together with the lack of attention that has been paid to its role in the appraisal process, at least in work-related studies, which has prompted the exploration of the concept of control in the workplace as the major focus of this study.

Chapter 4

THE RESEARCH STRATEGY

A transactional approach to the study of workplace stress was adopted in this research project. The aim was to investigate the process of stress appraisal and coping, with a particular focus placed on the concept of situational control perception. A major goal of the study was to develop a measure of situational control which identified specific control targets that individuals perceive to be pertinent to stressful incidents. In this way it would be possible to identify what control is over, as well as how much control an individual has.

A two stage study using the survey method was designed to achieve these objectives. Stage 1, utilised an open-ended questionnaire to elicit employees' perceptions of control; both in general perceptions concerning control in the workplace and situation specific perceptions relating to particular work incidents. This questionnaire is listed in Appendix A. The responses to the questionnaire were content analysed and formed the basis of a thirty-five item scale measuring control perception and a thirty-six item scale measuring situational feeling and emotions (Apprendix B).

Stage 2, the main part of the study, adopted a situation-oriented approach to stress appraisal and coping. An eleven page survey booklet, that is listed in Appendix B, was used to examine individual appraisals, coping behaviour and coping effectiveness of a single work stressor incident. The survey booklet consists of seven sections which measure the following variables: primary appraisal of the work stressor, control perception, situational feeling and emotions, coping behaviour, coping effectiveness, dispositional affect and demographic information about the respondent was obtained. The survey was administered to employees in four New Zealand organisations.

Stage 1

The Stage 1 Sample

Stage 1 was conducted in August 1995 with sixty-seven employees from the main office of a large regional authority. During normal office hours the researcher spoke to staff members in small groups about the study and then they were invited to complete and return questionnaires in prepaid envelopes.

The employees who participated in Stage 1 held a variety of positions covering professional (29%), technical (27%), clerical (26%), managerial (11%), and supervisory (7%) roles. The average age of respondents was 38.7 years and the majority were female (60%). Employees had been in their current position for an average of 3 years and had been employed with the organisation for an average of 5 years.

The Open-Ended Questionnaire

In Stage 1 participants were asked to provide written answers in response to a series of open-ended questions concerned with workplace control. The purpose of this was to identify the control targets that are meaningful to employees and that give them a real *sense* of control within the work environment. Since this was an exploratory study an idiographic approach was thought to be most appropriate. Adopting this approach meant that item development for the Stage 2 survey was based on the empirical results of a preliminary study designed to probe the subjective meaning of control rather than on purely a priori conceptions of workplace control taken from the literature, which, in Chapter 3 was found to be limited in some important aspects. The Stage 1 questionnaire, which is listed in Appendix A, is divided into three sections. The first section is concerned with the general meaning and importance that individuals attach to personal control in the workplace. This information was obtained by asking two questions:

> To what extent is having personal control in your workplace important to you and why is this,
>
> What does having personal control mean to you in your workplace?

The second section invites the respondent to describe specific situations which they had experienced in the workplace. Participants were requested to describe two situations: one "in which you felt you had control of the situation" and one "in which you felt you lacked control of the situation". Instructions requested that these situations be described as fully as possible including how the respondent felt about the situation and respondents were asked to rate the extent to which the situation was experienced as stressful, using a five point response scale (from 1: not at all, stressful to 5: most stressful incident experienced at work.

In the final section of the questionnaire employees were again asked to focus

on a single event or situation at work, this time thinking of one that had been most stressful for them during the last month. Respondents were asked to describe the event and identify the factor which had made it stressful for them. Then they were requested to identify how important it was to them to have control over this situation (from 1:not important at all, to 4:extremely important), to describe what possibilities there were for changing the outcome, and to describe how and why they dealt with the situation in the way that they did.

Content Analysis

Employees' responses were entered into a word processor and printed as a single text file for content analysis. Content analysis is a method used to gather and examine the content of respondents written responses to questions with the aim of determining common themes or patterns that emerge from these responses (Neuman 1994). A systematic procedure was used to develop mutually exclusive categories based on the semantic content of individual's responses to the open-ended questions about control perception. This is what Kaid and Wadsworth (1989) refer to as a substance based approach.

The category system was developed by the author. It was based on the responses to open-ended questions. A person unrelated to the project, was given some preliminary training in coding the content of the responses, and then recoded all the responses using the same classification system. Agreement between the two coders was 89-92% for each of the questions, using Holsti's (1969) formula for intercoder reliability. This formula takes account of the number of categories as well as the probability that any one of them will be used (cited in Kaid and Wadsworth 1989).

The content analysis resulted in the development of two scales used in the main study. A thirty-five item scale measuring control perception and a thirty-six item scale measuring situational feeling and emotions. These scales along with the findings from the content analysis are presented in Chapter 5.

Stage 2

A mail survey method was used in Stage 2 to examine the stress appraisal and coping process of a single stressful incident. Employees from four New Zealand organisations took part in this part of the study. Before the survey was administered pre-testing of the instrument was carried out with five staff members from one of these organisations. These staff were requested to complete the questionnaire paying particular attention to the instructions, question wording and content, the time to complete the survey and respondent interest. The staff felt that the survey was too long and that some items did not appear to be relevant. As a result of this pre-testing two scales, the work locus of control (Spector 1988) and the general well-being questionnaire (Cox, Thirlaway, Gotts and Cox 1983) were dropped from the final survey. Some minor changes of wording were also made to the remaining questions to ensure that instructions to participants were clear. The final instrument concentrated on individual appraisals of a single stressful incident, their coping behaviour and perceived efficacy to deal with the situation.

The Stage 2 Sample

At the outset of the project it was intended that employees from only one organisation (Sample 1) would be recruited for the main study. Employees from the main branch of this organisation had participated in Stage 1 and their responses had formed the basis of the survey instrument that was developed for the main study. However, when the Stage 2 data collection began, twelve months after the pilot study, this organisation was undergoing major restructuring. It seemed that employees were more concerned with these organisational changes than they were in participating in an occupational stress survey. To supplement the poor return rates and to increase the sample size three other organisations were approached to participate in the study. Having employees from more than one organisation increases the generalisability of the findings to other organisations and occupational groups that may be of a similar nature. A description of each organisation follows.

Sample 1 was a large urban council. Questionnaires were distributed to four hundred employees and, of these, eighty one volunteered to complete the survey booklet. A response rate of 20%. Sample 2 was a small regional council. Questionnaires were distributed to two hundred and thirty employees and, of these, nineteen volunteered to complete the survey booklet. A response rate of 8%. Sample 3 was a local branch of a government

department. Questionnaires were distributed to fifty one employees and, of these, eleven completed the survey booklet. A response rate of 21%. Sample 4 was a dispersed group of managers from a public sector enterprise. Questionnaires were distributed to seventy six employees and, of these, twenty-three completed the survey booklet. A response rate of 30%.

The total Stage 2 sample consisted of one hundred and thirty four participants, giving an overall response rate of 18%. This was lower than expected, but was considered to be acceptable for the statistical analyses that were carried out. Also, these employees can not be said to be representative of their respective organisations, as they all volunteered to complete the survey. However, we might assume that they are typical of office and adminstrative workers.

Most of the participants worked full-time (94%). They were aged between 19 and 59 and had a mean age of 38.15 years. There was an approximately equal proportion of male and female in the study, with 55.3% male and 44.7% female. On average, participants had been employed within their respective organisations for 7.28 years and had been in their current position for 3.64 years.

The sample was classified into five broad occupational groups. The largest occupational group were managers, 26.3%, another 25.4% of the sample were classified as professional persons (these people held positions as engineers, accountants, architects, town planners and librarians), 23.7% were classified into a category labelled officer/assistant (these persons held positions as technical officers, engineering assistants, library assistants and computer officers), 15.3% were classified as clerical, and 9.3% were classified as supervisors.

Figure 4.1 shows the distribution of gender in the various occupational categories. Males and females differed with respect to the type of positions they held. Males generally held higher status positions, 34% were managers, 13% were supervisors, and 28% were classified as holding professional positions. The majority of females held lower status positions as assistants or clerks (58%), with only 16% in managerial roles and only 4% in supervisory roles.

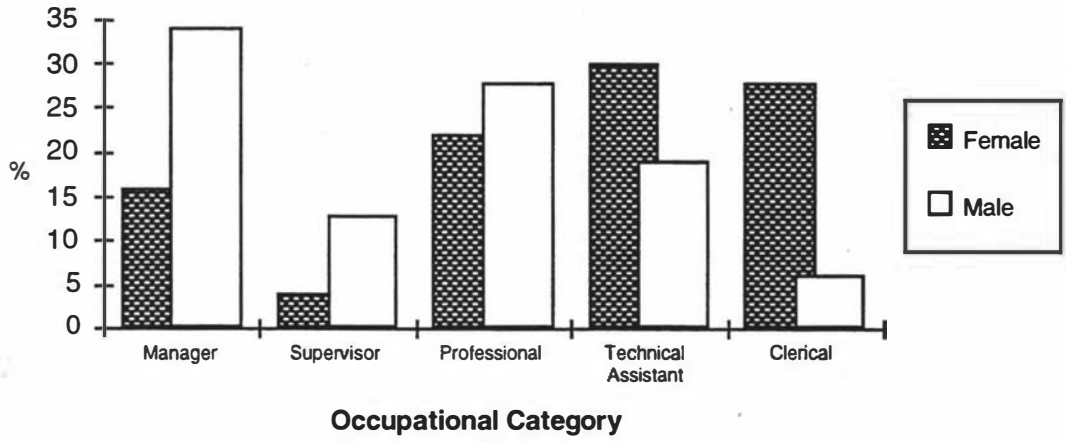

Figure 4.1. Occupational Status of the Sample

The Survey Instrument

The Stage 2 survey is an eleven page booklet made up of seven sections. The survey booklet is listed in Appendix B. It was designed to examine the appraisal and coping process of a single stressful incident which employees have experienced in the workplace. The situation-oriented approach is consistent with the transactional approach (Folkman and Lazarus 1984, Folkman et. al. 1986b), which the study adopted to investigate work-related stress.

Respondents were asked to take a few moments to think about the event or situation at work that they had found most stressful during the past month. They were instructed to describe this situation, to give details of what and who was involved, and to rate using a ten point scale (from 1: not very stressful, to 10: very stressful) how stressful the situation had been. With the incident in mind respondents were then requested to complete items designed to measure the following aspects of the incident: primary appraisal, secondary appraisal, situational feeling and emotions, coping behaviour and coping effectiveness. According to Lazarus and Folkman (1984) these are the salient components of the transactional theory. In addition to these items, dispositional affect and demographic items were also measured.

1. Primary Appraisal

Primary appraisal measures the personal significance that an incident has for an individual, i.e., what is at stake. It is intended to examine the extent to which an individual perceives a situation in terms of threat, harm or loss. Taking the lead from Dewe (1991a), eight items relevant to workplace stressors were adapted from Folkman et. al's. (1986b) assessment of primary appraisal. Respondents were asked to identify the extent to which their work encounter involved each of the eight items, on a five point scale (from 1: not at all, to 5: a great deal.

2. Secondary Appraisal

Secondary appraisal involves an examination of a situation in terms of its possibilities for control. These control perceptions were assessed in two ways. Firstly, in a more specific way, thirty-five items that identified the control targets as a means of exploring the control mechanisms that are perceived by individuals to be relevant to specific situations and to identify the level of perceived control over these factors. Secondly and in a more general way, an overall appraisal of the degree of controllability associated with the situation.

a. Control Targets

The thirty-five control targets were developed from the stage 1 open-ended responses. Respondents were requested to identify which factors were important to control the situation, using a 5 point scale (from 1: not at all, to 5: a great deal). Then they were requested to rate the same thirty-five items, this time rating the amount of control they had over these factors (from 1: none at all, to 5: a great deal). In this way it was possible to identify what factors were important to individuals to gain control in the situation as well as how much control an individual had over these factors.

b. Controllability

Controllability refers to an individual's general perception of control over a specific situation. It was measured by items that Dewe (1991a) adapted for the workplace from Folkman and Lazarus' (1980) assessment of secondary appraisal. Respondents were requested to identify which of the following six statements best described their situation (could change or do something about it, needed to know more before you could act, had to hold yourself back from doing what you wanted to, that you had to accept, where the organisational bureaucracy made it difficult to deal with or where if you dealt with it in the way that you wanted to it would have made things difficult for you).

3. Situational Feeling And Emotions

Situational feeling and emotions were measured by thirty-six positive and negative adjectives used to describe how individuals may be feeling. Thirty-two of these items were obtained from the stage 1 content analysis and the remaining four items were chosen from emotion scales that have been used in other transactional studies to examine stress and emotion (Folkman and Lazarus 1985, Smith and Ellsworth 1987). Respondents were requested to rate the extent to which their situation had made them experience the emotions and feelings described, using a 5 point scale (from 1: not at all, to 5: a great deal).

4. Coping Behaviour

Coping behaviour was measured using a sixty-three item scale to identify specific behaviours and actions which assess coping with work stressors (Dewe and Guest 1990). The scale was specifically devised to measure coping with work-related stress. It has been used with a number of working populations in New Zealand and the United Kingdom (Dewe and Guest 1990, Dewe 1992a, Frederickson and Dewe 1996a, Frederickson and Dewe 1996b, Trenberth et. al. 1996). Respondents rated the extent to which they used each of the strategies to deal with the situation they described, using a 5 point scale (from 1: did not use, to 5: used a great deal).

5. Coping Effectiveness

Coping effectiveness was assessed by four items chosen from the literature. These are proximal outcomes used to examine the respondent's perceived effectiveness of particular coping efforts used in a situation (Folkman, 1992). The items were perceived efficacy to cope with the situation, the effectiveness of the coping strategies to resolve the problem, the effectiveness of the coping strategies to reduce distress, and the extent to which the individual was satisfied with the outcome. The coping efficacy item was adapted from Conway and Terry (1992). Using a ten point rating scale employees rated the extent to which they had coped with the situation (from 1: not very well, to 10: extremely well). The three other items were adapted from Folkman et. al. (1986b) and Bowman and Stern (1995). Using a five point scale employees were asked the extent to which the coping strategies they had used were effective to deal with the problem and to reduce the distress (from 1: not at all effective, to 5: extremely effective) and the extent to which the outcome had been satisfactorily resolved (from 1: it is unresolved and has got worse, to 5: it was resolved to satisfaction).

6. Dispositional Affect

Dispositional affect is a variable that has received considerable attention in the stress and coping literature. While there has been some debate over the role that affect plays in the stress process (Spector and O'Connell 1994, Moyle 1995), the most common view in the work-related stress literature is that affect, in particular negative affect acts as a confounder or nuisance variable in the stressor-strain relationship (Brief, Burke, George, Robinson and Webster 1988). According to this perspective individuals high in negative affect have a tendency to report greater dissatisfaction and distress. It is this view which this study takes. Consequently negative and positive affect were measured as control variables in the present study. Affect was measured by the Positive and Negative Affect Schedule (PANAS, Watson, Clark and Tellegen 1988). These scales consist of a measure of Positive Affect (PA), defined by the authors as "the extent to which a person feels enthusiastic, active and alert" and Negative Affect (NA), which is defined as "a general dimension of subjective distress and unpleasureable engagement" (p1063). The scales appear to be reliable. Watson et. al. (1988) obtained alpha coefficients of .88 for PA and .87 for NA, and test-retest reliability coefficients, taken eight weeks apart, of .68 for PA and .71 for NA. Each scale consists of ten items. Using a five point scale (from 1: not at all, to 5: extremely) respondents were asked to rate the extent to which each adjective described the way they generally feel.

7. Demographic Information

Demographic information was collected at the end of the questionnaire. Employees were requested to identify their gender, age, occupational status, length of employment in their current position, length of employment with the organisation and whether they were employed on a full-time or part-time basis.

Data Collection Procedure

Employees at each of the four organisations were given prior notice that a study of work stress was being conducted and that they would be invited to participate in an anonymous mail survey. Two different procedures were used to recruit respondents into the study. In two of the organisations permission was given for the researcher to speak with employees individually or in groups. During normal office hours the researcher spoke to staff about the study, telling them what participation would involve. They were then given an information sheet, survey booklet and a stamped addressed envelope and were invited to complete and return the questionnaire. In the other two

organisations employees were dispersed across various branches of a regional area. They were mailed information sheets, stamped addressed envelopes and survey booklets.

The questionnaires were distributed between August and November 1996. A reminder notice and further request to return completed questionnaires was sent out to employees two weeks after questionnaires were distributed.

Data Analysis Procedure

Data collected in Stage 2 was entered into a text editor and then analysed using Statistical Packages for the Social Sciences, (SPSS Windows version 7.0). The statistical analysis involved three steps.

Step 1 involved a preliminary check of the four samples to determine whether it was appropriate to pool them into a single sample for statistical analysis purposes. This involved an inspection of item correlations, means and standard deviations computed separately for each of the organisations. The results from this check are described in Chapter 5.

Step 2 was concerned with the evaluation of the salient concepts investigated in the study. This involved a series of principal component analyses to assess the eight primary appraisal items, thirty-six situational feeling and emotion adjectives, sixty-three coping strategy items and thirty-five control target items; with separate analyses for the scores which assessed the importance of control targets and the scores which assessed the degree of control over these targets. The results from this part of the analysis are presented in Chapter 5.

Step 3 was concerned with exploring the role of control in the stress appraisal and coping process of a single workplace stressor. Firstly, means, standard deviations and correlations from all the variables in the study were examined. Following this a series of moderated multiple regression analyses were carried out to explore the role of control in predicting coping behaviour and coping effectiveness. The results from this part of the analyses are presented in Chapter 6.

The Treatment Of Missing Data

Missing data is common in survey research. Preliminary analysis of the items revealed that there were no systematic patterns of missing data. For the

principal component analysis a minimum sample size of 100, recommended by Gorsuch (1983) was obtained in each case. Since all pre-analyses checks carried out on the data reached an accepted criterion, missing values were not replaced in the principal component analyses that are presented.

However, missing items in the moderated multiple regression analysis were replaced. Approximately ten variables were examined in each of the analyses that were carried out. The likelihood of a case having at least one missing variable meant that a considerable number of cases from a relatively small sample would be dropped. From the variety of missing data treatments that are available (De Vaus 1991), two procedures were used to replace missing values to avoid bias entering the data. In the calculation of the control perception scores missing data was replaced by group means based on occupational status. This was considered to be the best choice given the influence of occupational status on aspects of workplace control. For all other scale scores missing items were replaced by the calculated mean. A number of analyses were run without replacing missing items to examine if any significant bias had occurred as a result of the replacement. These results were consistent with the regressions obtained using replaced values. Treating missing data in this way enabled descriptive information and the multiple regression analyses to be consistently reported from a sample of 134 persons and in this way the results that are presented in Chapter 6 uses as much of the data collected from the 134 study participants.

Two multivariate statistical techniques were employed in the study to carry out the analysis: principal component analysis and moderated multiple regression. The remainder of the chapter presents a discussion of these techniques, describing the various criteria used to meet appropriate conditions for these techniques and the necessary procedures undertaken.

Principal Component Analysis

Principal component analysis was used to evaluate the structure of the items investigated in the study. It is one of several statistical techniques used to evaluate scales and survey instruments which are designed to assess psychological concepts. According to Tabachnick and Fidell (1989) the aim of this technique is to determine which, if any, of a group of items form coherent subsets. The goal is to reduce the number of items that are intended to measure a particular concept, to give a score that is manageable for further analysis. It is an exploratory technique in that the number of components

which is produced from the analysis is not stated a priori (Kline 1994). As this study is itself an exploratory one, with the aim of developing a measure of situational control and investigating its role in the stress appraisal and coping process, this was deemed to be an appropriate factor analytical tool.

To ensure that a meaningful component structure was obtained, four steps were taken in each of the principal component analyses that were conducted. This involved examining: (1) the suitability of the item distribution, (2) the appropriateness of the correlation matrix for principal component analysis, (3) the methods which were used to determine the number of components to retain and (4) the type of rotation used to interpret the final component structure. The details of each of these steps are as followed.

1. The Suitability Of The Distribution

Before performing a principal component analysis it is first necessary to determine whether the variables demonstrate univariate normality. To do this, skew and kurtosis levels were examined for each item. According to Muthen and Kaplan (1985, cited in Ferguson and Cox 1993) levels of skew and kurtosis should not exceed .20 for any item. The cut off point for acceptability was set at no greater than 25% of the items having skew or kurtosis levels above .20 as advised by Ferguson and Cox (1993). This criterion was met for each set of items that were factor analysed.

2. The Appropriateness Of The Correlation Matrix.

Once it is confirmed that the data conform to a normal distribution the next step is to check the appropriateness of the correlation matrix for principal component analysis. Two statistics recommended by Dziuban and Shirkey (1974) were used to assess this. The first was the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. This measures the extent to which a group of variables can be viewed psychometrically as a coherent set of items. A minimum index of .70 suggests that associations between the correlations can be accounted for by a smaller set of factors. With the exception of the primary appraisal items, where a KMO of .68 was obtained, each set of items investigated in the study reached the minimum value considered acceptable for principal component analysis. The KMO values are reported along with the component loadings and alpha coefficients, in the scale evaluation that is presented in Chapter 5.

The Bartlett test of sphericity (Bartlett 1950) was the second statistic used to

determine the appropriateness of the correlation matrix for factor analysis. This test is based on chi-square and is used to determine whether the sample correlation matrix is from a multivariate normal population with independence between the variables (Dziuban and Shirkey 1974). A significant result was obtained for each set of items, which suggested that it was appropriate to conduct principal component analysis on the items that were investigated.

Once pre-analysis conditions have been met, two important decisions need to be made before an interpretable component structure can be obtained. The first is to decide the number of components to retain and the second is to decide the type of rotation method used to interpret the final component structure. The way the present study dealt with these issues is discussed next.

3. The Number Of Components To Retain

There is no objective criterion to determine what is an appropriate number of components to retain (Hakstian, Rogers and Cattell 1982), although a considerable amount of effort has been spent in developing techniques that can assist researchers to make this decision. In the debate to assess these techniques, Zwick and Velicer (1986) claim that while some methods are more commonly used it is not necessarily because they are considered the best, rather it is because they happen to be available on commonly used statistical software.

Attempts to examine the accuracy of different methods have often produced inconsistent findings. To overcome the problems of over extraction or under extraction of components associated with particular methods, the present study used four methods to guide the decision on the number of factors to retain. These were the Kaiser 1 rule (Kaiser 1970), the scree method (Cattell and Vogelman 1977), the standard error scree (Zoski and Jurs 1996) and factor replication (Walkey and McCormick 1985). The first two of these procedures are commonly used, although a number of problems have been identified with their use and the latter two were chosen to help minimise these problems.

The Kaiser 1 rule recommends that as many components with eigenvalues greater than one should be retained. According to Gorsuch (1983) it is intended to estimate the maximum number of components to be retained. This rule has been found to both under estimate and over estimate components but is commonly used by researchers.

The scree test is a visual plot of the eigenvalues which is intended to graphically identify the separation of non trivial and trivial components. It assumes that factor variance will decrease as components measure random error. The scree plot method is considered to be relatively accurate when used by experienced researchers, but differences in interpretation arise with novices (Cattell and Vogelmann 1977).

This problem of difficulty in interpretation led Zoski and Jurs (1996) to develop a linear regression approach to the scree test. This approach, called the standard error scree is a relatively new technique which is intended to provide an objective measure based on the scree method. According to Cattell (1978) "the points on the part of the curve that one should consider scree should fit tightly". Based on this assumption the standard error scree method examines how tightly the points fit the scree line by using the standard error of estimates to determine objectively where the cut-off should occur. A standard error of estimate that exceeds 1/m indicates a non trivial component, whereas values that do not reach this criterion are trivial components.

Factor replication (Walkey and McCormick 1985) is the last approach and provides an alternative to the other mathematical approaches. According to Walkey and McCormick, a useful and reliable scale should replicate across a number of independent groups to produce a stable component structure. Using this method a similarity index is calculated which can range from zero to one. A perfectly replicable structure will have a similarity index of one, indicating 100% replication in the component loadings across the groups. This method attempts to determine the number of components to retain by systematically rotating different numbers of components until a replicable component structure is found across a split sample. In this way the final structure that is obtained is said to be a characteristic of the scale and not merely a characteristic of the sample from which the correlations were derived.

The final decision on the number of components is presented in Chapter 5. This was guided by using all four methods in conjunction with Rummel's (1970) common sense view that components should be retained if they can be given a meaningful interpretation.

4. The Method Of Rotation

Rotating the items is used to assist in the interpretation of the final component

structure (Tabachnick and Fiddell 1989). Varimax rotation is a commonly used orthogonal rotation method that provides a simple structure and makes relatively few assumptions of the data (Dewe 1991a). In order not to over estimate the number of items in the final structure, component loadings were set at ±.40. These are presented in descending order (Child 1970), in Chapter 5.

Moderated Multiple Regression Analysis

The final part of the analysis involved a series of moderated multiple regression (MMR) analyses. These were carried out to explore the role of control as a moderator in the relationship between stress appraisal and coping behaviour and between coping behaviour and coping effectiveness. The findings from this analysis are reported in Chapter 6.

Multiple regression is a statistical technique that is used to assess the relationship between two or more variables, more precisely, it is used to find the best prediction of a dependent or criterion variable from several continuous or dichotomous independent variables (Tabachnick and Fidell 1989). In this way it is possible to examine the influence that different independent variables have on the criterion variable. There are a number of different regression techniques and these vary in the way that variables are entered in the equation, whether their entry is determined statistically or by the researcher and what happens to variance shared by the variables in explaining the dependent variable. The analyses carried out used moderated multiple regression where the order of entry is determined by the researcher and this technique and its procedures will be discussed next.

Different relationships can exist between independent variables in explaining their influence on a dependent variable. Simple additive models investigate the direct, or main effects that independent variables have on the dependent variable. More recently researchers investigating workplace stress have shown interest in exploring some of the more complex relationships that can exist (Stone 1990). The aim of the analyses in the present study is to examine the novel measure of control perception, developed in the study, as a moderator in the relationship between stress appraisal and coping behaviour and between coping behaviour and coping effectiveness. A variable is said to have a moderating influence when the relationship between an independent variable and a dependent variable changes or varies at different levels of a third variable, the moderator variable (Baron and Kenny 1986).

There are a number of ways to investigate the influence of a moderator effect: traditional analysis of variance, multiple regression to calculate and compare the slopes of regression lines from different groups and moderated multiple regression (MMR). The latter approach has become the most common to examine moderating effects and is recommended by Cohen and Cohen (1983) and Jaccard, Turrisi and Wan (1990).

Moderated multiple regression "involves forming a multiplicative term, X1X2, which is said to encompass the interaction effect" (Jaccard et. al. 1990, p21). This interaction term represents the relationship between two independent variables and their combined interactive effect on the dependent variable. Although considerable debate over its use has been raised it has a number of advantages over other methods, including greater statistical power and preservation of the original data (Stone 1990). It is considered to be the most preferred method to examine moderating effects (Dunlap and Kemery 1987).

The present study used hierarchical regression to examine the moderator effect and variables were entered into the equation in separate blocks. The interaction term was calculated from centred variables as recommended by Cronbach to reduce multi-collinearity (cited in Jaccard et. al (1990 p31). The independent and moderating variables were entered in separate blocks, with the independent variables entered first to examine main effects, followed by the interaction term to examine moderating effects. The squared multiple correlation (R squared) is calculated to determine the proportion of variation in the dependent variable that is predicted at each step (Jaccard et. al. 1990). A moderating effect is accepted if the R square at the entry of the interaction term is significant, as calculated by the F statistic.

Chapter Summary

This chapter has described the two stage research design that was developed to explore control perception and to develop a scale which assesses control perception in work-related stressful transactions. Now that the survey instruments and procedures and the sample populations of each stage of the study have been described, and the statistical techniques that were used to analyse the data have been discussed, the next two chapters will present the results of the study.

Chapter 5

SCALE DEVELOPMENT AND PSYCHOMETRIC EVALUATION

The findings from the study are presented in two chapters. These two chapters correspond to the two objectives that the study set out to achieve. The first objective was concerned with measurement, and the aim was to develop a scale that measured control perception in stressful situations. The second objective was then to use this measure of control perception to examine the role that control plays in the stress process.

This chapter deals with the first objective of the study and is primarily concerned with scale development and evaluation. It focuses on four variables examined in the study: control perception, situational feeling and emotions, the items for these variables were developed in the study, and primary appraisal and coping behaviour, where the items were taken from the literature. The content analysis of the former are discussed, and then the items for all four variables are evaluated through a series of principal component analyses.

Two other variables that were measured in the main survey were not evaluated. The items that measure dispositional affect, because their reliability and validity has been established elsewhere in the stress literature (Watson et. al. 1988) and this work was considered to be sufficient to demonstrate their reliability for multivariate analysis. The four items that were used to measure coping effectiveness were not evaluated. There were too few items for principal component analysis to be considered appropriate.

Chapter 6 presents the findings of the main survey conducted in Stage 2. This involves a descriptive and correlational analysis of all the variables that were used in the survey, including dispositional affect, a description of the work stressor, perceived stress intensity, primary appraisal of the stressor, control perception, feeling and emotions, coping behaviour and coping effectiveness. These variables were used to achieve the study's second objective, which was to examine the role of control in the process of appraising and coping with work-related stressors. Moderated multiple regressions were carried out for this purpose.

Before an evaluation of the items could proceed it was first necessary to conduct a preliminary analysis of the four samples surveyed in Stage 2. This was carried out to determine whether it was appropriate to pool these samples into a single sample before carrying out the principal component analyses. An inspection of item correlations, means and standard deviations, computed separately, revealed no significant differences between the organisations. Therefore, it was considered to be acceptable to pool the samples into a single sample of N=134.

The development and psychometric evaluation of the items will be structured in two parts. The first part describes a content analysis of the Stage 1 data. It contains a summary of employees responses to open-ended questions and describes the nature of the scale items that were developed for Stage 2. The second part describes the principal component analyses that were carried out to demonstrate the extent to which the items formed a coherent sub-structure. Following this, scale scores were then constructed and reliability coefficients, means and standard deviations were calculated to determine their psychometric properties.

The Procedures For The Principal Component Analyses

The procedures that were followed in carrying out principal component analysis have been described in Chapter 4. However, they can be summarised as follows. First, the items were checked to ensure that they demonstrate a univariate normal distribution. If it is accepted that the items fit a normal distribution, the next step is to inspect their correlation matrix to determine whether there are any significant associations between them. Following this, the data is tested for a Kaiser Meyer Olkin statistic of at least .7 and a significant Bartlett test of sphericity before proceeding with the principal component analysis.

Four methods were used to determine which components should be retained in each of the analyses. These were the Kaiser 1 rule, the standard error scree method, the graphical scree test and factor replication. In all of the analyses that were conducted the Kaiser 1 rule and, to a lesser extent the standard error scree method consistently over specified the number of factors to retain. The graphical scree test and factor replication proved to be the more useful guides to determining the most intuitive component structure in each analysis. Therefore, to keep things simple, only the results from these two procedures

are reported.

It was also necessary to adopt a procedure to handle those cases where an item loaded above the criterion on more than one component. To identify and create distinct components Ferguson and Cox (1993) recommend that items that load above the criterion on more than one component, and where the discrepancy between loadings is small, less than .02, should be dropped from the analysis. For example, according to the procedure an item loading at .53 and .51 on two components would be dropped. The analysis is then re-run with the revised set of items. This procedure was used to obtain the component loadings in the study.

The Procedures For Evaluating Reliability

The intemal psychometric properties of each of the scales were evaluated by examining their coefficient alpha estimates, mean inter-item correlations and item-total correlations as recommended by Cox and Ferguson (1994). Coefficient alpha is often reported as an overall estimate of the reliability of a scale, and it is generally accepted that if a coefficient is at least .70, a scale can be accepted as reliable (De Vaus 1991). However, this statistic is effected by the length of a scale and therefore mean inter-item correlations, which are not effected by length are also reported as an estimate of reliability. Briggs and Cheek (1986) suggest that these should range between .2 - .4, items below .2 can suggest disparity among the items, while items above .4 may indicate that items are redundant. In addition to these coefficients, estimates of item-total correlations, which Cox and Ferguson suggest should range between .2 - .8, were used in conjunction with coefficient alpha, to determine if any items should be dropped from the scale (De Vaus 1991). Each of these estimates of reliability are displayed in the tables presenting the outcome of the analyses.

Each of the concepts to be evaluated are presented in the following order: control perception, situational feeling and emotions, primary appraisal and coping behaviour.

Scales Developed In The Study

1. Situational Control Perception

A primary objective of the study was to develop a scale of control that could assess individual's perception of control using a situation-oriented approach to examine work-related stress. The aim was to identify the situational factors that individuals perceive they have control over. The open-ended questions made it possible to collect information about employees attitudes to control in their workplace. From their general perceptions of control and their descriptions of controllable and uncontrollable incidents, it was possible to identify a number of control targets that could be used to examine control perception in stressful work situations. What follows is a content analysis that describes the factors that enabled individuals to maintain control and how they perceived this control in ways that were personally significant to them.

The Significance Of Control

The Stage 1 study revealed that personal control plays an important role in the workplace in terms of it's effects on psychological well-being. The majority of employees surveyed felt that it was very important (69%) or important (28%) to them to have control at work. In reply to the question "why is personal control important" participants reported eighty responses that expressed the following themes: personal control is important for effective performance and the achievement of work goals (30%), for positive self esteem (20%), for reduction of stress (20%), for job satisfaction (18.75%), and as an opportunity for self expression (11.25%).

The Meaning Of Control

Not only do individuals vary in why personal control is important to them, but they attach different meanings to what that control entails. Two hundred and three responses were generated from employees open-ended replies to the question "what does having personal control mean to you in your workplace" and from their descriptions of controllable and uncontrollable incidents. These responses were grouped into five broad categories which are presented in table 5.1. It is recognised that the responses represent complex appraisals. However, the categories were developed to refer to broad themes of control perception. These are autonomy over how work tasks are carried out, predictability associated with work, interpersonal control, having responsibility over work outcomes and having self control.

Table 5.1.

Content Analysis of The Meaning of Control

1. Control as autonomy	%
- method control (how tasks are carried out)	23
- time control (when tasks are carried out)	9
- opportunities to work independently	5
2. Predictability	
- opportunities to organise and plan workload	20
- access to information and resources	5
- role clarity (information to perform role)	5
3. Interpersonal control	16
4. Responsibility over outcomes	12
5. Self control	5
	100 %

The Content Analysis Of Control Perception

When employees think about control in the workplace they think about the autonomy they have to carry out the different aspects of their work. Over a third (37%) of responses referred to this facet of control. Employees viewed opportunities to make decisions about how their workload is carried out, the time frames that they work to, and opportunities to work independently, each as a way of having control. A number of respondents expressed their perception of control in the following way.

> personal control means being able to decide when and what I do and to allocate my own time to getting the job done.

> I was given the task of organising consultants to carry out a study and report by a certain date. I had control of writing the brief, inviting tenders, selecting a consultant and supervising the work. The main concern of my manager was that the work be completed by the deadline. The other details were left to me.

> Personal control means that I am able to manage my workload and work independently on my projects without having to refer to a manager for authority all the time.

Another way in which employees feel they have control in the workplace is when they can predict their workload and work environment. This category covered 30% of the responses. Employees in this category viewed control as their ability to know about or predict future work events and changes in circumstances in the work environment.

Predictability has been equated with control in the general stress literature for some time (Miller 1981), although, it has only recently been viewed as an important facet of control in the workplace (Dwyer and Ganster 1991). Respondents referred to their being able to know about, and have certain expectations of work events and work demands that may occur in the future. The responses suggested that they were able to reduce uncertainty and maintain a sense of control. The content analysis suggested that employees achieve this in three ways: through opportunities to plan and organise their workload, by having access to information and resources, and by being clear about how to perform their role, what is commonly referred to as role clarity. Respondents described these aspects of control in the following way.

> I like to be proactive rather than reactive. My job involves managing across two levels of twelve people. I need to be fairly organised to cope with this. I am preparing an application for a scholarship. I contacted all the other people involved, the referees and the typist, and organised them three weeks before the closing date and gave them background notes. I made myself a note to contact them one week before to check on their progress. I was then clear to organise myself. I also gave myself a limit of one week ahead to finish my part so there was a grace period if anything went wrong. This made me feel I had control over things, I was organised and I only had to think out my part.

> I had to prepare a small publicity campaign. The preparation of the press release, adverts etc, was in my control and under my direction. I felt I had control over it with others making input and following my lead and I was left to complete the job to satisfaction. The instructions were clear and the outcomes were satisfying.

> Control is about knowing what needs to be done, having the necessary documents, information, resources available to do it in an organised way.

Yet another aspect of control emerged from employees descriptions of controllable and uncontrollable situations. This involved the interpersonal relationships that exist between staff in the workplace. This has been labelled *interpersonal control* and made up 16% of the responses. Interpersonal control refers to the way people work together. It can refer to a positive sense of control when individuals feel supported by their colleagues, or a lack of control when individuals feel that they are unable to gain the cooperation and support of their colleagues. It also involves both formal levels of authority that exist among employees, as well as general perceptions of control that relate to how individuals work together to achieve work outcomes. In controllable situations employees reported co-operative and supportive relationships with their colleagues in which they managed to achieve their desired outcomes. One respondent referred to control this way.

> The incidents at work that I have control over are mostly the same, I have control of a situation when I negotiate with the people involved when they will book their work in, and how long I need to complete the task before the agreed on deadline. If it is not possible I let them know and we then renegotiate. This way I know what takes priority and having their co-operation enables me to complete work with minimal stress.

However, in uncontrollable situations employees described relationships in which they did not perceive their colleagues as supportive, they experienced a lack of co-operation from others, felt their confidence had been betrayed, or they perceived their objectives were thwarted by others. Respondents expressed uncontrollable incidents with others in the following way.

> A particular situation occurred which was uncontrollable. I had no support from my peers and some senior staff who were involved. The person I am chiefly responsible to was absent and I had been left clear instructions as to what result was expected. In addition to this I had further intervention and pressure from a third party which prevented my achieving my objectives.

> I was concerned about specific working conditions that myself and others were being exposed to and which management were not doing anything about. On behalf of other staff I reported a situation to the appropriate authorities. I left only my first name and was assured it would remain completely confidential. The next morning my manager contacted me very concerned as he had been concerned that I had dobbed my employer in. The person responsible for the situation was someone whom I will have to work with a great deal more in the future. I had to apologise even though I felt I had done the right thing for the right reasons. My managers attitude towards me seems to have been adversely effected. I felt betrayed by the authority who had assured me confidentiality and have felt upset by the negative feelings toward me from my manager and colleagues. I feel disappointed because little has been achieved by my actions.

For many respondents responsibility is an important aspect associated with personal control. 12% of the responses referred to control as a matter of taking responsibility for their work and their work outcomes. According to Jackson (1989), when people have control over their work they assume a sense of responsibility and this idea is supported by the study's findings. For example these respondents reported this in the following way.

> Personal control enables individual responsibility to be taken to achieve expected outcomes. Then satisfaction (or otherwise) with the result of these decisions or actions can be experienced.

However, while responsibility is clearly associated with control, having responsibility does not necessarily imply having control over outcomes (Rothbaum 1981). For example, as one respondent reported.

> I am responsible for advertising the criteria of submissions and reports. I have been unable to get any progress on a new award from the people whom it has been handed to. I gave them a deadline so that I can achieve the outcome that I desire. This is frustrating and has remained unresolved. I find this very stressful as I have no control over the outcome.

The final control category accounted for only 5% of responses and refers to what has been labelled *self control.* Responses consisted of attempts to focus on control of emotions, thoughts and behaviour, rather than on control of some external factor. Respondents expressed this form of control in the following way.

> It's important to try and not worry, to try and maintain focus on work, this enables me to relax and to think around and through problems.
>
> I try to remain objective, keep cool, calm and collected and try not to let others affect me, to keep cool under the pressure.
>
> Its important not to worry or let work pressures get to me.

Although fewer employees focused on self control in their control perceptions, it was clearly seen as an important control mechanism for some individuals. Control is generally perceived by an individual in terms of their ability to change the outcome of a situation. However, in attempting to identify conditions that enhance an individual's perception of control, this was thought to be an interesting an perhaps overlooked, aspect of control.

In summary, the main goal of Stage 1 was to identify whether distinct control targets would emerge from the reported control perceptions of a sample of employees. The findings of the content analysis show that employees do in fact attach different meanings to personal control and that these meanings are based on the importance that they place on diverse work conditions and the circumstances of specific situations. However, common aspects of control are also identifiable. These can be used to identify the factors that employees perceive enhance their control in the workplace, in a way that carries personal significance. It is proposed that these themes can be used to develop a control scale to measure the degree of control that an individual perceives in a given situation and to identify what features of a situation this control is over.

The Control Perception Scale

Five broad categories emerged from the content analysis of employee responses to questions about personal control in the workplace. These formed the basis of a control target scale that was designed to measure the degree of autonomy, predictability, interpersonal control, responsibility over outcomes and self control. Thirty-five items were used to represent these aspects of control and an attempt was made to keep the wording of the items consistent with the actual responses of those surveyed in Stage 1.

The workplace autonomy category included nine items that covered aspects of control such as, "choosing the pace to work at", "deciding how to get the job done", "choosing the order to carry out tasks", "choosing when to complete a task" and "being able to do things in your own way". Workplace predictability was assessed with ten items which examined the extent to which employees have access to information and resources, opportunities to plan and organise work and opportunities to anticipate or reduce uncertainty. Items which captured this facet of control included "being clear about what has to be carried out", "being informed about things", "planning your own time", "anticipating potential problems", and "anticipating what might happen". The self control category was made up of seven items that were intended to examine the extent to which a person exercises self control when dealing with a stressful situation. Although this aspect of control was reported by fewer respondents, it was given a relatively large number of items in an attempt firstly, to reflect the type of answers that employees gave in their open-ended responses and secondly, to try to find out how best to capture this aspect of control. Items in this category included "maintaining self control", "by remaining relaxed", "by carrying on as best you could" and "not allowing it to make you feel bad". The category that referred to control as responsibility over outcomes and goals involved six items such as, "having responsibility for the outcome", "feeling certain about the outcome" and "completing the job to your satisfaction". The final category, interpersonal control, was measured by three items, "having authority over co-workers", "having the support of others" and "knowing how others are involved". In total this made a thirty-five item scale, which did not in any way exhaust all the possibilities for item inclusion. The scale is intended as a first attempt to measure control perception in a situation-oriented way that measures the degree of control an individual has as well as what that control is over.

The Principal Component Analysis Of Control Perception Items

The thirty-five items that were developed from the content analysis of the Stage 1 survey were used in the main survey of Stage 2 to assess situational control with regard to a specific work stressor. Individuals were requested to report which of the thirty-five control items they perceived was important to have control in the situation they described (from 1: not at all, to 5: a great deal) and then, the degree of control they possessed over these control targets (from 1: none at all, to 5: a great deal).

There is no recommended statistic for examining questions of this nature and a number of alternative methods could have been used to explore the control perception items. First, it was possible to conduct principal component analysis, on the thirty-five items, but on the scores from each of these two questions separately. Second, a confirmatory factor analysis could have been conducted to examine whether the scores derived from the two questions result in similar factor structures. Third, it was possible to examine the discrepancy between the two scores for each item. Each of these alternatives present interesting possibilities. However, as this was an exploratory study with the goal of examining what factors individuals report as important for control as well as their perception of the degree of control over these different factors, it was decided that an analysis should begin by examining the scores from these two questions separately. Two principal component analyses were therefore carried out.

a. The Factors That Are Important For Control

The first principal component analysis was carried out on the scores obtained from the question "how important was the factor in giving you control over the situation".

Once univariate normality of the items was demonstrated, inspection of the correlation matrix suggested that the items were suitable for analysis. A Kaiser Meyer Olkin (KMO) measure of sampling adequacy (.88) and a significant Bartlett test of sphericity (2746.37, p =.000) confirmed that a principal component analysis was acceptable. The ratio of items to sample size was 1 in 3, although this is below the rule of thumb of 1 in 10. Gorsuch (1983) claims that there is no safe ratio and with a robust set of items a sample size of at least 100 is acceptable.

An inspection of the scree test suggested that four components should be

retained. To examine the stability of this structure, the sample was randomly split into two groups and then factor replication similarity estimates were calculated for each group, rotating three, four and five component structures. The similarity coefficients between the two samples were most stable with a four component structure (s = .88, .83, .66 and .80, for the components as set out in table 5.2). The four component structure was retained and the component loadings were set at ±40 to avoid over specifying and they are presented in descending order (Child 1970).

The final analysis suggested that when it came to identifying what employees reported was important to control their situation, the items fell into four components explaining 56.4 percent of the variance and the respective eigenvalues were 10.12, 2.79, 2.40 and 1.57, as set out in table 5.2.

Component one explained 33.8 percent of the variance. It was made up of eight items that were labelled Task Control. The items that loaded on this component referred to employees "choosing the pace to work at", "choosing when to start a task", "choosing the order to carry out tasks", "planning your own time" and "setting your own priorities".

The second component was labelled Predictability. It was made up of ten items that explained 9.3 percent of the variance. These items included "being informed about things", "anticipating what might happen", "feeling certain about the outcome" and "knowing how others are involved".

The third component was made up of six items which were labelled Self Control. These eight items explained 8 percent of the variance. The items included "By maintaining self control", "not allowing it to make me feel bad", and "carrying on as best as you could".

The fourth component was labelled General Control it was made up of six items which explained 5.3 percent of the variance. The items included "being involved in decision making", "doing things in your own way", having responsibility for the outcome" and "being able to do a professional job".

Table 5.2.

Principal Component Analysis of 35 Control Items

Factors That Are Important For Control

	Task Control	Component 1	Component 2	Component 3	Component 4
13	Meeting a deadline	**.77**	.23	-.13	.03
24	Choosing when to complete a task	**.75**	.11	.21	.18
10	Organising your own workload	**.72**	.41	-.07	.14
29	Choosing when to start a task	**.72**	.10	.36	.18
12	Setting your own priorities	**.71**	.42	-.06	.13
28	Choosing the order to carry out tasks	**.71**	.17	.41	.11
15	Choosing the pace to work at	**.69**	.07	.19	.23
7	Planning your own time	**.68**	.42	.05	.11
	Predictability				
1	Being informed about things	.10	**.73**	.03	.16
8	Being able to reduce uncertainties	.26	**.72**	.18	-.06
3	Anticipating what might happen	.15	**.70**	.08	-.00
2	Clear on what has to be carried out	.16	**.68**	.05	.24
5	Have all the necessary information	.20	**.62**	.05	.12
4	Feeling certain about the outcome	.38	**.60**	-.01	.04
11	Anticipating potential problems	.35	**.58**	.21	.04
6	Obtain information from colleagues	.05	**.57**	.01	.27
9	Respond as thought appropriate	-.12	**.56**	.32	.22
14	Knowing how others are involved	.24	**.56**	.08	.18
	Self Control				
27	By remaining relaxed	.06	.01	**.77**	.02
26	Not allow it to make you feel bad	.05	.05	**.72**	-.00
30	By maintaining self control	.09	.20	**.70**	.28
31	Prepare for worse possible outcome	.30	.29	**.58**	.14
35	Carrying on as best as you could	.27	-.05	**.54**	-.00
33	Attempting to avoid conflict	-.03	.23	**.52**	.30
	General Control				
21	Being involved in decision making	.22	.37	.09	**.72**
20	Responsibility for the outcome	.33	.10	.19	**.62**
18	Have support of others	-.12	.19	.33	**.59**
22	Doing things in 'your own way'	.26	.02	.32	**.57**
17	Having authority over co-workers	.13	.08	-.18	**.54**
25	Doing a professional job	.33	.36	.19	**.50**
	Mean	2.81	3.41	3.31	3.20
	Standard deviation	1.25	.98	.99	1.01
	Eigenvalue	10.12	2.79	2.40	1.57
	Percentage of variance explained	33.80	9.30	8.00	5.30
	Alpha reliability coefficient	.91	.87	.79	.77
	Mean inter- item correlation	.58	.41	.38	.36
	Item-total correlations (range)	.65 -.75	.48 -.67	.41 -.60	.31 -.73

Alpha coefficients for the control perception scores were calculated, these were moderate to high, .91, .87, .79 and .77 for the four components as set out in table 5.2, respectively. The inter-item correlations are within the range that Cox and Ferguson (1994) recommend. The mean inter-item correlation for component one, is somewhat higher than the range that Briggs and Cheek's (1986) recommend, but in this case it does not appear that any of the items are redundant. Therefore based on these reliability coefficients the items were accepted as reliable measures.

Composite scale scores for each of the relevant items were constructed by summing the appropriate items together and dividing by the number of total items in the scale. In this way, employees had four scores which measured how important each facet of control was to obtain a sense of control in the situation, for task control, predictability, self control and general control. Descriptive statistics of these scale scores are described in Chapter 6.

b. Degree Of Control Over These Factors

After examining the factors that were important in the situation a principal component analysis was carried out to examine the scores derived from the question "how much control did you actually have over these factors".

Inspection of the items suggested that they conformed to a normal distribution. The Kaiser Meyer Olkin measure of sampling adequacy (.78) and a significant Bartlett test of sphericity (1982.86, p =.00) confirmed that the scores derived from this question were acceptable for principal component analysis. The graphical scree test suggested that four components be retained. Factor replication similarity estimates were calculated for four, five and six component structures and these tended to support the scree test estimate, which was that a four component structure was appropriate for the data. The component loadings and psychometric properties of these items are presented in table 5.3.

The four components that were rotated explained 51.7 percent of the variance, with eigenvalues of 10.70, 2.83, 2.45 and 2.10, respectively. Overall, the sub-structure of these scores was similar to the previous analysis. The first component explained 30.6 percent of the variance and was made up of eleven items that were labelled Perceived General Control. These items included "choosing the order to carry out tasks", "being able to work independently" and "having responsibility for the outcome".

Table 5.3.

Principal Component Analysis of 35 Control Items

Degree Of Control Over These Factors

	General Control	Component 1	Component 2	Component 3	Component 4
28	Choosing the order to carry out tasks	**.70**	.08	.35	.14
16	Deciding how to get the job done	**.68**	.22	.04	.22
23	Complete the job to your satisfaction	**.67**	.19	.26	.14
29	Choosing when to start a task	**.65**	.06	.44	.18
24	Choosing when to complete a task	**.59**	-.05	.47	.07
20	Responsibility over the outcome	**.59**	.19	-.06	.11
21	Involved in the decision making	**.59**	.40	.04	-.08
22	Doing things in your own way	**.57**	.07	.38	.14
19	Being able to work independently	**.54**	.18	.38	.14
17	Having authority over co-workers	**.46**	.21	.15	.09
34	Re-examining the situation	**.42**	.14	.04	.28
	Predictability				
1	Being informed about things	.00	**.75**	-.01	.16
5	Having all the necessary information	.12	**.67**	.15	.05
4	Feeling certain about the outcome	.20	**.66**	.18	-.13
2	Clear what has to be carried out	.26	**.62**	.08	.14
8	Able to reduce any uncertainties	.33	**.59**	.08	.10
6	Obtain information from colleagues	.21	**.58**	-.02	.06
9	Respond as you thought appropriate	.15	**.54**	.19	.41
3	Anticipate what might happen	-.07	**.51**	.23	.21
14	Knowing how others are involved	.32	**.46**	.22	.15
	Task Control				
10	Organising your own workload	.14	.15	**.82**	.04
7	Planning your own time	.10	.11	**.80**	.07
13	Meeting a deadline	.22	.09	**.76**	.06
12	Setting your own priorities	.29	.24	**.71**	.19
15	Choosing the pace to work at	.41	.05	**.55**	.18
	Self Control				
30	By maintaining self control	.22	.10	.17	**.72**
27	By remaining relaxed	.01	.08	-.03	**.70**
26	Not allowing it to make you feel bad	-.09	.11	.10	**.66**
33	Attempting to avoid conflict	-.03	.10	.29	**.63**
32	Thinking about alternative solutions	.35	.20	.02	**.61**
31	Prepare for worse outcome	.34	.15	.07	**.58**
35	Carrying on as best as you could	.38	-.06	.05	**.57**
25	Doing a professional job	.38	.28	.18	**.42**
	Mean	2.31	2.37	2.48	2.59
	Standard deviation	1.09	.90	1.26	1.04
	Eigenvalue	10.70	2.83	2.45	2.10
	Percentage of variance explained	30.60	8.10	7.00	6.00
	Alpha reliability coefficient	.92	.87	.90	.89
	Mean inter- item correlation	.51	.40	.64	.50
	Item-total correlations (range)	.51 -.79	.48 -.68	.64 -.80	.59 -.76

The second component explained 8.1 percent of the variance. It consisted of nine items and was labelled Perceived Predictability. All nine of the items which loaded on this component also loaded together in the previous analysis. Items included "being informed about things", "feeling certain about the outcome" and "knowing how others are involved".

The third component referred to control over how and when tasks are carried and was labelled Perceived Task Control. These five items explained 7 percent of the variance. All five of these items loaded together on the analysis carried out with the items that measured factors which were important for control. The items were "organising your own workload", "planning your own time", "meeting a deadline", "setting your own priorities" and "choosing the pace to work at".

The final component consisted of eight items and explained 6 percent of the variance. It was labelled Perceived Self Control. Seven of these items loaded together on the same component in the previous analysis and included "by remaining relaxed", "not allowing it to make you feel bad" and "carrying on as best as you could".

Alpha reliability coefficients of .92, .87, .90 and .89 were obtained for each of the four components, respectively. The mean inter-item correlations were somewhat high for three of the components, but item-total correlations fell within the recommended range suggested by Cox and Ferguson (1994). The scales were accepted as reliable and scale scores were constructed using the procedure described earlier.

Comparative Analysis Of The Two Questions On Control

The scores that examined control from the two questions or two perspectives, *what is important* and *how much*, suggested a four component structure for the thirty-five control items. A comparison between the two sub-structures suggests they were only slightly different (see table 5.4.).

Overall, there was considerable stability in items loading on the same components. The items that referred to predictability and self control were almost identical across the analyses. The items that referred to task control and having control generally within the workplace were much more unstable across the analyses. Further discussion of this issue will be made in Chapter 7.

Table 5.4.

A Comparison Of The Two Questions On Control

Items Loading Across The Two Analyses

	Task Control	How Important	How Much
13	Meeting a deadline	X	X
24	Choosing when to complete a task	X	
10	Organising your own workload	X	X
29	Choosing when to start a task	X	
12	Setting your own priorities	X	X
28	Choosing the order to carry out tasks	X	
15	Choosing the pace to work at	X	X
7	Planning your own time	X	X
	Predictability		
1	Being informed about things	X	X
8	Being able to reduce uncertainties	X	X
3	Anticipating what might happen	X	X
2	Clear on what has to be carried out	X	X
5	Have all the necessary information	X	X
4	Feeling certain about the outcome	X	X
11	Anticipating potential problems	X	
6	Obtain information from colleagues	X	X
9	Respond as thought appropriate	X	X
14	Knowing how others are involved	X	X
	Self Control		
27	By remaining relaxed	X	X
26	Not allow it to make you feel bad	X	X
30	By maintaining self control	X	X
31	Prepare for worse possible outcome	X	X
35	Carrying on as best as you could	X	X
33	Attempting to avoid conflict	X	X
			32
			25
	General Control		
21	Being involved in decision making	X	X
20	Responsibility for the outcome	X	X
18	Have support of others	X	
22	Doing things in 'your own way'	X	X
17	Having authority over co-workers	X	X
25	Doing a professional job	X	
			28
			19
			23
			29
			16
			24
			34
	items that did not load on the components	16, 19, 23, 32, 34	11, 18

A Summary Of The Evaluation On Control

In summary, the principal component analyses that were carried out on the control perception items supported a multifaceted view of control. The four facets of control that emerged consisted of control over how and when tasks are carried out (task control), predictability, self control and general control in the work environment.

Thus, each individual in the study had eight control scores. These scores were used to examine the role of control in predicting coping behaviour and coping effectiveness. The mean control perception scores and the correlation of these scores with other variables assessed in the main study are presented in Chapter 6, followed by a series of multiple regression analyses that were conducted to examine the role of control in the stress process.

2. Situational Feeling and Emotions

Affect is an important part of the stress appraisal process, yet in the early development of the study it was not given particular attention. However in Stage 1, what emerged from the content analysis of the data were descriptive affective reactions related to controllable and uncontrollable incidents. Combined with this and further review of the stress literature discussed in Chapter 3, it was decided that affect should be given greater attention in the study as a predictor of coping behaviour.

Content Analysis Of Affective Descriptions

According to Cox (1985) emotions may define the experience of stress for an individual and in the content analysis individuals personal meaning of control and their affective responses were reported. For many individuals personal control is important because of the significance that it has for self esteem and job satisfaction. In controllable incidents employees described feeling satisfied and fulfilled (22%). They used terms such as successful, proud, accomplished, credible and competent (22%), feelings of responsibility (17%), clarity (11%), energy (3%) and empowerment (3%).

Uncontrollable incidents were described as frustrating (10.5%), where individuals felt angry (10.5%), a sense of panic and tension (7%), lacking credibility (5%), confused (5%), worried (5%), bad (3.5%), disappointed (3%) and annoyed (2%). The analysis found that the uncontrollable incidents were

reported to be significantly more stressful than the controllable incidents employees described (paired t-test: (t=-6.8, d.f. 53, p=.000).

Consequently the measurement of affect was considered to be an important addition to the assessment of stressful situations. Many of the adjectives that employees used to describe their encounters were consistent with other checklists used in the literature (see Smith and Ellsworth 1985 and Folkman and Lazarus 1985). In uncontrollable incidents employees reported that they experienced negative emotions such as tension, anger and panic. However, in controllable incidents employees reported feeling competent, credible, fulfilled and proud. These adjectives are not classified by all theorists as emotions and there is considerable debate over what are basic emotions. However, the adjectives that were identified from the content analysis represent affective appraisals (Lazarus 1993) and therefore they describe employees affective responses and the personal meanings they associate with workplace demands.

Setting this aside, the second goal in the study was to explore the predictors that may influence the coping process. As discussed in Chapter 3, in reviewing the literature on factors that influence coping, Compas et. al. (1991) suggest that both emotional arousal as well as perceptions of control may be factors which influence coping behaviour. In light of this information, the affective content of employees open-ended responses was the basis for developing the thirty-six items that describe feeling and emotions. This was incorporated in the main stage of the study to assess the appraisal process and to explore the predictors that influence coping behaviour. The evaluation of these items and their psychometric properties is presented next.

Principal Component Analysis Of Feeling And Emotion Items

A Kaiser-Meyer-Olkin Measure of sampling adequacy (.84) and a significant Bartlett test of sphericity (2511.26, p =.000) confirmed that the thirty-six items that described situational feeling and emotions were acceptable to carry out a principal component analysis. The graphical scree test suggested that four factors be retained. Inspection of a four factor solution revealed that the fourth factor in this solution was made up of only two items, guilty and resigned. To determine the most stable solution for the sample, factor replication similarity coefficients were calculated for two, three and four components structures. Similarity coefficients for a two component structure were .94 and .96, suggesting two highly stable components. This structure suggested two

distinct and interpretable components.

Therefore, the final solution for these items consisted of two broad components comprising positive and negative feeling and emotion adjectives. These two components explained 45.7 percent of the variance and eigenvalues of 10.29 and 6.41 were obtained for components one and two, respectively. The component loadings were set at ±.40 and are reported in descending order, in table 5.5.

The first component explained 28.6 percent of the variance, it described positive feeling and emotions. This was labelled Feeling Accomplished and Active. It was made up of nineteen items which referred to employees feeling satisfied, fulfilled, proud, confident, eager and energised. Alpha reliability coefficients for these items was high .94 .

The second component was made up of fourteen items that explained 17.1 percent of the variance. These items described negative feeling and emotions and were labelled Feeling Threatened and Letdown. Items included feeling that the situation made me worried, anxious, fearful, tense, upset, panicky, pressured, resentful, disappointed, sad, angry and betrayed. An Alpha coefficient of .89 for the negative items suggested that this scale is reliable.

Two feeling and emotion scores were constructed on the basis of this analysis. Only three items failed to meet the loading criteria of .40 that was set. These were feeling guilty, resigned and challenged. The adjectives guilty and resigned are both negative but they suggest feelings that they are different from feelings of threat and being letdown. The adjective challenge, is an item that could be appraised as positive or negative. When an individual appraises an event as challenging this may be a positive situation for them, on the other hand, some individuals may refer to a situation as challenging when it is beyond their ability to cope.

Table 5.5.

Principal Component Analysis of 36 Items

Situational Feeling and Emotions

	Feeling Accomplished and Active	**Comp 1**	**Comp 2**
6	Satisfied	**.81**	-.16
7	Pleased	**.81**	-.06
32	Valued	**.81**	-.03
8	Fulfilled	**.78**	-.10
36	Empowered	**.77**	-.08
31	Confident	**.77**	-.14
18	Competent	**.76**	-.13
25	Energised	**.73**	-.02
1	Happy	**.72**	-.07
19	Proud	**.71**	-.01
34	Focused	**.71**	.02
10	Credible	**.69**	.01
12	Eager	**.68**	.08
14	Relieved	**.67**	-.06
35	Alert	**.67**	.13
15	Relaxed	**.64**	-.19
26	Secure	**.61**	-.18
5	Joyful	**.54**	-.04
29	Hopeful	**.50**	.10
	Feeling Threatened and Letdown		
33	Worried	.03	**.77**
17	Anxious	.14	**.76**
16	Fearful	.02	**.73**
28	Tense	-.09	**.72**
13	Frustrated	-.09	**.68**
23	Confused	-.13	**.66**
3	Upset	-.07	**.66**
9	Resentful	-.19	**.64**
20	Panic	-.07	**.61**
21	Betrayed	-.11	**.61**
30	Pressured	.09	**.53**
4	Angry	-.15	**.52**
2	Sad	.05	**.50**
24	Disappointed	-.08	**.48**
	Mean	1.64	2.62
	Standard deviation	.64	.79
	Eigenvalue	10.29	6.41
	Percentage of variance explained	28.60	17.10
	Alpha Reliability Coefficient	.94	.89
	Mean inter- item correlation	.47	.36
	Item-total correlations (range)	.45 - .78	.42 - .66

Based on this analysis two feeling and emotion scores were calculated, using the procedure described earlier. These scales referred to feeling accomplished and active, and feeling threatened and letdown, and descriptive analysis of these variables are described in Chapter 6.

After evaluating the items that were developed from the Stage 1 content analyses, the next step was to evaluate the remaining items which were used to measure primary appraisal and coping behaviour. These items are evaluated next.

Other Scales Measured In The Main Survey

1. Primary Appraisal

Primary appraisal of the stressors was measured by eight items that Dewe (1991a) had adapted for measuring workplace stressors from Folkman et. al. (1986b). The respondents were requested to rate the extent to which each of the eight items had been involved in their incident, using a five point scale (from 1:not at all, to 5: a great deal).

Principal Component Analysis Of Primary Appraisal Items

To confirm the appropriateness of the scores for principal component analysis a Kaiser Meyer Olkin measure of sampling adequacy and a Bartlett test of sphericity were carried out. The Kaiser Meyer Olkin statistic obtained was .68, this is slightly below the acceptable level, however a significant Bartlett test of sphericity was obtained (206.63, p=0.00) and the correlation matrix suggested that there was a sub-structure among the items.

The graphical scree test supported a two component structure. The initial rotation showed that one item loaded highly on both components, after this was removed and the analysis re run, the final analysis revealed two components explaining 57.2 percent of the variance. The component loadings and psychometric properties of these items are presented in table 5.6.

The first component was labelled Threat to Self Esteem. It explained 35 percent of the variance and consisted of five items: “feeling embarrassed”, “feeling you would lose the respect of someone important to you”, “appearing incompetent”, “feeling threatened”, and “feeling you would not achieve an important goal”.

The second component was made up of only two items that referred to an appraisal of being seen as uncooperative. These two items were "you appearing to be an unsupportive person" and "you appearing difficult to get along with. As this component was made up of only two items, it was not constructed into a scale score.

The alpha coefficient for component one was .69. The mean inter-item and item-total correlations are within the recommended ranges and the scale appears to be interpretable. Based on these criterion the items for component one were accepted as reliable.

Table 5.6.

Principal Component Analysis of 8 Items

Primary Appraisal

	Threat to Self Esteem	**Component 1**	**Component 2**
7	You feeling embarrassed	**.82**	-.03
5	Feeling you would lose the respect of someone important to you	**.76**	.13
4	You appearing incompetent	**.64**	-.00
8	You feeling threatened	**.54**	.15
6	You feeling you would not achieve an important goal	**.52**	.07
1	You appearing to be an unsupportive person	.05	**.90**
2	You appearing difficult to get along with	.11	**.90**
	Mean	2..39	-
	Standard deviation	.99	-
	Eigenvalue	2..46	-
	Percentage of variance explained	35.30	-
	Alpha reliability coefficient	.69	-
	Mean inter- item correlation	.31	-
	Item-total correlations (range)	.35 -.60	-

From the principal component analysis a single primary appraisal scale was constructed that assessed the extent that a stressor was appraised as a threat to one's self esteem. The second component was dropped from further multivariate analyses. Descriptive analysis of the primary appraisal score is reported in Chapter 6. The final principal component analysis was carried out on the coping behaviour items, this is discussed next.

2. Coping Behaviour

Coping behaviour involved sixty-three items. These items were developed by Dewe and Guest (1990) to assess coping behaviour in work-related stress. Employees were asked to rate the extent to which they had used each of the coping strategies in the incident they described, using a five point scale (from 1: did not use, to 5: used a great deal).

Principal Component Analysis Of Coping Behaviour Items

The Kaiser-Meyer-Olkin measure of sampling adequacy of (.73) and a significant Bartlett test of sphericity (4117.76, p= .000) suggested that these items were acceptable for carrying out a principal component analysis. The scree test suggested four components should be retained. However, factor replication similarity coefficients suggested this structure was not stable. Estimates obtained from the factor replication suggested that the only sub structure that appeared to be relatively stable for the data set was a two component structure although these are somewhat lower than is desirable (s =.66 and .43, for components one and two respectively).

The final solution (table 5.7.) consists of two components that represent the broad classification that Folkman and Lazarus (1980) have proposed between problem and emotion-focused coping efforts. Together these two components explained 23.9 percent of the variance of the coping behaviour scores. Their eigenvalues were 10.62 and 4.20 and they were labelled emotion-focused and problem-focused coping, respectively. The component loadings and psychometric properties of these components are displayed in table 5.7.

The first component represented the emotion-focused coping distinction. It was made up of twenty-five items that explained 17.1 percent of the variance. The items in this component tend to suggest two forms of emotion-focused coping. A number of the items represented the expression of emotional arousal and referred to efforts to get rid of tension, such as "get rid of some tension by expressing some irritability and frustration to yourself", "express your irritation to other work colleagues just to let off steam" and "express your feelings and frustration's to others so that you can think rationally". Other emotion-focused items referred to avoidance and distraction tactics, such as "leave you desk and go to another part of the office", "go and have a few beers or other drinks", "decide to go out with the family or friends and enjoy yourself forgetting about work for a time" and "just avoid the subject of contention".

Table 5.7.

Principal Component Analysis of 63 Items

Coping Behaviour

	Emotion-Focused Coping	Comp 1	Comp 2
20	Get rid of some tension by expressing some irritability and frustration to yourself	**.61**	-.07
27	Express your irritation to other work colleagues just to let off steam	**.59**	-.12
61	Eat more	**.59**	.04
62	Just give up and accept what's happening	**.58**	-.26
53	Lose your temper for a moment	**.56**	-.16
63	Leave your desk and go to another part of the office	**.53**	.23
31	Decide to go out with family or friends and enjoy yourself to forget for a time	**.52**	.24
55	Take a day off	**.51**	.04
59	Take your feelings out on your staff or whoever happens to be around	**.51**	.06
58	Spend time day dreaming	**.51**	.21
18	Move on to other work activities that you know you get satisfaction from	**.51**	.37
29	Leave the problem and try and solve it later by talking it through at home	**.50**	-.09
8	Become more involved in non-work activities-hobbies, leisure	**.50**	.32
17	Ignore for a time the apparent problem until you feel you are ready to handle it	**.49**	.19
52	Think of the next batch of work and hope it will be better	**.49**	.25
30	Express your feelings and frustration to others so that you can think rationally	**.49**	.13
36	Simply drop what you are doing and take up something totally unrelated	**.49**	.14
28	Try to get advice and suggestions from someone else at work	**.48**	.14
37	Just become more involved in family life, helping with partner and children	**.47**	.26
33	Just avoid the subject of contention	**.46**	-.04
41	Tackle routine work so that you can cool down and get some composure back	**.45**	.28
57	Drink more tea or coffee	**.44**	.08
60	Go and have a few beers or other drinks	**.42**	.26
39	Let your work output slip until you have had a chance to deal with the problem	**.42**	.19
26	Face situation knowing your family and partner give you help and sense of proportion	**.40**	.21
	Problem-Focused Coping		
50	Try and introduce some variety into your job	.36	**.65**
46	Let people know exactly where you stand	.14	**.61**
38	Don't let the problem go until you have had a chance to deal with it	.07	**.58**
45	Make sure people know you are doing your best	.10	**.57**
49	Delegate some of the work	.08	**.55**
44	Follow the proper channels of procedure to cover yourself	.15	**.54**
11	Think of the good things in the future	.08	**.53**
47	Try and get as much rest as possible so you will be fresh and alert at work	.20	**.52**
10	Get support from the fact that not all problems can be solved at a national level	.10	**.48**
51	Whenever possible give your opinion about how things are done	.30	**.48**
3	Try to find out more about the situation-seek out additional information	.14	**.47**
32	Stand back and try and rationalise the problem	-.08	**.47**
13	Consider a range of plans for handling the situation-set priorities	-.01	**.46**
23	Try to think objectively about the situation and keep your feelings under control	-.10	**.41**
	Mean	1.73	2.34
	Standard deviation	.50	.68
	Eigenvalue	10.62	4.20
	Percentage of variance explained	17.01	6.80
	Alpha reliability coefficient	.88	.82
	Mean inter - item correlation	.23	.25
	Item-total correlations (range)	.36 -.51	.29 -.62

The second component represented items that referred to both cognitive and behavioural efforts to deal with the situation and refers to problem-focused coping as conceptualised by Folkman and Lazarus (1980). It was made up of fourteen items that explained 6.8 percent of the variance including "stand back and try and rationalise the situation", "consider a range of plans for handling the situation - setting priorities", "try to find out more about the situation", " don't let the problem go until you have had a chance to deal with it", "delegate some work" and "let people know where you stand and that you are doing your best".

The reliability of the coping behaviour scales was reasonably high. Alpha coefficients of .88 and .82 for component one and two, respectively were obtained. In addition the mean inter-item correlations and item-total correlations fell within the recommended levels that were used in the study to obtain reliable scales. Based on this analysis two scores for coping behaviour were constructed for each respondent. Descriptive analysis of problem-focused and emotion-focused coping are described in Chapter 6.

Summary Of Scale Development And Evaluation Process

The study developed and evaluated two scales that examined control perception and situational feeling and emotions, and two further scales: primary appraisal and coping behaviour that were also evaluated through principal component analysis. These scales appeared to show face validity and demonstrated acceptable levels of reliability as estimated by set criterion outlined earlier. Therefore, they were considered as reliable measures of the concepts they were intended to measure, and were used in further multivariate analyses.

The present study suggests that control can be conceptualised as a multi dimensional concept. This is a view that is consistent with literature that has begun to emerge more recently in relation to measurement on control (Smith et. al. 1997, Jackson et. al. 1993, Dwyer and Ganster 1991). Four control facets were identified from the principal component analyses. These are labelled task control, predictability, self control and general control in the workplace.

On the basis of the principal component analyses situational feeling and emotions was represented by two scales. One that referred to positive affect and was labelled feeling accomplished and active and a second scale

representing threat and feelings of being letdown. Five of the initial eight primary appraisal items were constructed into a single scale that represented threat to self esteem. Finally, the coping behaviour items were conceptualised into two broad coping dimensions, consistent with the Folkman and Lazarus (1980) schema: problem and emotion-focused coping.

Based on these analyses thirteen scores were constructed for each respondent. Eight control perception scores, two feeling and emotion scores, one primary appraisal score and two scores for coping behaviour. Descriptive and further multivariate analysis of these scales are presented in Chapter 6, where individuals reports of the stress appraisal and coping process of workplace stressors is explored.

Chapter 6

EXPLORING CONTROL IN THE STRESS APPRAISAL AND COPING PROCESS

This is the second chapter of results in the thesis. It contains descriptive statistics on all the variables measured in the main survey and a set of moderated multiple regression analyses carried out to explore the role of control perception in the stress process. Participants in the main survey were requested to describe a recent incident they had found stressful and keeping that incident in mind, to then answer a series of questions that measured the perceived intensity of the stressor, primary appraisal, control perception, feeling and emotions associated with the stressor, coping behaviour and perceived coping effectiveness. Dispositional affect was measured as a control variable in the survey.

The chapter begins by describing the work stressors that employees reported, and by presenting descriptive statistics and a correlation analysis of each of the variables that the study investigated. Following this the findings from the multiple regression analyses are discussed. Two aspects of the coping process were investigated. The first set of regressions were carried out to determine the influence that three situational appraisal variables: primary appraisal, feeling and emotions and control perception have in predicting the use of coping behaviour, and to examine the role of control perception as a moderator in the relationship between stress appraisal and coping behaviour.

The second set of analyses were carried out to determine the role of control perception in coping effectiveness by testing the goodness of fit hypothesis. This hypothesis proposes that coping behaviour will be effective when it is in line with an individual's perception of control in the situation (Folkman and Lazarus 1980). The analyses examined coping effectiveness using four items: perceived self-efficacy in dealing with the stressor, satisfaction with the outcome, perception that the coping strategies that had been used, were effective in resolving the problem and in reducing distress. Separate multiple regression analyses were carried out to explore the interaction between control perception and coping behaviour (independent variables), and their main effects in predicting each of these four dependent measures.

Description Of Work-Related Stressors

Table 6.1 displays five categories of work stressors that emerged from a content analysis of participant responses in the main survey (inter-rater agreement in using the categorisation schema was 83%, between two coders). When individuals described these work stressors they were also requested to rate how stressful they had found these incidents, on a scale from 1-10, where high scores referred to greater perceived stress (M=7.49, SD= 1.59).

The majority of the stressors that were reported involved interpersonal conflict (50%). This type of stressor is commonly reported in studies of work-related stress (O'Driscoll and Cooper 1996, Schwartz and Stone 1993, Dewe 1992a), but it is not to be confused with role conflict, where individuals have conflicting job demands that are placed on them by several people (Cartwright and Cooper 1997). Incidents in this category involve the relationships that individuals have with others. For example, individuals reported having difficulty working with other persons, felt that they were not given support from other people, that other people were not co-operating with them and they reported feeling letdown by others. Within this category of stressors 36% were labelled as problems with other co-workers, 30% were problems dealing with customers, 16% were problems with managers or senior persons within the organisation, 13% were categorised as problems with junior staff and 5% of responses were where individuals reported difficulties dealing with other departments in the organisation.

Table 6.1.

Perceived Intensity of Work Stressors

Work Stressors	N	%	Mean (SD) Perceived Stress*
Interpersonal conflict	67	50	7.49 (1.62)
Workload issues	36	27	7.33 (1.72)
Personal issues	13	10	7.77 (1.83)
Lack of information	12	9	7.42 (1.00)
Technical problems	6	4	8.00 (.89)
Total work stressors	134	100	7.49 (1.59)

* How stressful the situation had been, higher scores refer to greater perceived stress

A second category of stressors labelled workload issues represented 27% of the response. These stressors involved workload demands, that could arise from quantitative or qualitative constraints. The majority of these problems involved quantitative constraints (75%), where workers reported having a too heavy workload, having too much to do in the time available and where they felt unrealistic deadlines had been set. Qualitative constraints (25%) resulted from employees having difficulty with the tasks they were required to do. They described these tasks as too complex, beyond their experience and beyond the scope of their job description.

A small percentage of incidents were coded as personal issues (10%). These stressors involved work problems that were of a more personal nature. Incidents in this category referred to a lack of promotion, feeling unjustly rewarded, settling into a new job that involved new challenges as well as problems of relocating to a new city.

Lack of information represented another category of stressors (9%). For example, employees referred to incidents where recent organisational changes and restructuring made information unavailable. Other employees reported having ambiguous perceptions of what their work tasks and responsibilities were, e.g. role ambiguity. The incidents in this category emphasise a lack of information to do the job, whereas incidents in the workload category referred to qualitative constraints.

A final group of stressors that employees reported involved incidents that were categorised as technical problems (4%). In these incidents employees reported incidents involving computer and equipment breakdowns.

The analysis examined whether the different work stressor categories were perceived as more demanding by employees. A one-way analysis of variance was carried out and revealed that respondents did not rate the work stressors differently in terms of perceived level of stress (Anova, *d.f*= 4, 129, F=.342, *p* >.10). The mean level of perceived stress for the combined stressors was 7.49, (SD=1.59), suggesting that the work stressors that were reported had been relatively demanding.

Descriptive Statistics And Inter-correlations Of The Main Variables

Means, standard deviations and psychometric data, for all the variables are displayed in table 6.2, and inter-correlations between the variables in table 6.3. A large number of these variables were significantly correlated. The magnitude of the observed correlations suggests that the variables are not redundant measures and have a good deal of variance that is not held in common. The descriptive statistics and inter-correlations for each of the control, predictor and dependent variables are discussed inturn.

Dispositional Affect

Positive and negative affect were measured as control variables in the study, as discussed in Chapter 4. Negative affect scores ranged from 10-37 with a mean score of 16, (SD=4.86). Positive affect scores ranged from 16-47 with a mean score of 34.3, (SD=6.42). These statistics suggest that on average the sample had moderately high levels of positive affect and relatively low levels of negative affect. Results similar to these have been obtained in other empirical studies of work-related stress (Bowman and Stern 1995, Elliott, Chartrand and Harkins 1994).

The analysis showed that positive and negative affect scores have a significant negative relationship (r=-.201, p <.05), which makes intuitive sense. Affect scores were also found to correlate with a number of the predictor and dependent variables, see table 6.3. Negative affect demonstrated a significant relationship with appraising the situation as being threatening to one's self esteem (r=.271, p <.01), perceived intensity of the stressor (r=.218, p <.01), situational feelings of threat (r=.403, p <.01), use of emotion-focused coping (r=.426, p <.01) and with several of the items assessing coping effectiveness. These correlations are consistent with views in the literature, that individuals high in negative affect are likely to report greater distress and dissatisfaction (Brief et. al. 1988), and it might also be expected they would use greater emotion-focused coping. In contrast, positive affect showed a significant positive relationship with the use of problem-focused coping (r=.460, p <.01), situational feelings of accomplishment (r=.252, p <.01) and greater perceived ability to reduce the distress (r=.217, p <.05). Again these correlations make intuitive sense.

Table 6.2.

Descriptive and Psychometric Data for Predictor and Dependent Variables

Variable	No. of items	Mean (N=134)	SD	Cronbach's alpha
Dispositional Affect				
Positive affect (range 10 - 50)	10	34.30	6.42	.88
Negative affect (range 10 - 50)	10	16.00	4.86	.85
Primary Appraisal				
Intensity of the stressor (range 1 - 10)	1	7.49	1.59	-
Appraisal of threat to self esteem	5	2.39	.93	.69
Factors Important For Control				
Predictability	10	3.41	.98	.87
Task control	8	2.81	1.25	.91
Self control	6	3.31	.99	.79
General control	6	3.20	1.01	.77
How Much Control Over Factors				
Perceived Predictability	9	2.37	.90	.87
Perceived task control	5	2.48	1.26	.90
Perceived self control	8	2.60	1.05	.89
Perceived general control	11	2.32	1.10	.92
Situational Feeling & Emotions				
Feeling accomplishment, active and alert	19	1.64	.64	.94
Feeling threatened and letdown	14	2.62	.79	.89
Coping Behaviour				
Problem-focused coping	14	2.34	.68	.82
Emotion-focused coping	25	1.73	.50	.88
Coping Effectiveness				
Coping self efficacy (range 1 - 10)	1	6.01	2.18	-
Effective resolution of the problem	1	3.01	1.02	-
Effective reduction of the distress	1	2.93	.96	-
Satisfaction with the outcome	1	3.50	1.19	-

Higher scores indicate a greater amount of the construct for all variables. All the scores with the exception of positive and negative affect, intensity of the stressor and coping self-efficacy are based on a 5 point scale.

Dispositional affect was also found to be related in different ways to control perception. Negative affect had significant negative correlations with the control perception scores that measure the degree of control perceived. For example, with perceived self control (r=-.226, p <.01) and general control (r=-.173, p <.05), and these correlations suggest that individuals high in negative affect were less likely to have high perceptions of control. In contrast, positive affect was correlated with the factors that employees thought were important for control, such as importance for predictability (r=.309, p <.01), task control (r=.214, p <.05), self control (r=.307, p <.01), and general control (r=.250, p <.01). These correlations suggest that individuals high in positive affect were more likely to report that it was important to have control. Overall, the correlation analysis suggests quite different interrelationships between positive and negative affect and the stress appraisal and coping variables, and in the directions that are consistent with the literature on dispositional affect.

Primary Appraisal

Primary appraisal was assessed by five items that examined the extent to which a stressor was perceived as a threat to one's self esteem. The stressors were reported as moderately threatening (M = 2.39, SD = .93) and no difference in levels of primary appraisal across the work stressor categories was found (Anova, $d.f$= 4, 129, F=.798, p >.10).

The analysis revealed that primary appraisal had a significant positive relationship with perceived intensity of the stressor (r=.295, p <.01), importance for predictability (r=-.178, p <.05), situational feelings of threat (r=.498, p <.01), problem-focused coping (r=.238, p <.01) and emotion-focused coping (r=.244, p <.01), and a significant negative relationship with coping self efficacy (r=-.199, p <.05) and satisfaction with the outcome (r=-.178, p <.05). It is interesting to note that the correlations between appraisal and coping behaviour suggest that the use of both problem and emotion-focused coping increased when a situation was perceived as threatening to one's self esteem.

Table 6.3.

Correlations Between The Variables In The Study

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
2	.295**																		
3	.001	.178*																	
4	-.016	.005	.615**																
5	.111	.157	.569**	.523**															
6	-.118	.033	.606**	.630**	.514**														
7	-.150	-.082	.346**	.267**	.195*	.158													
8	-.075	-.030	.228**	.296**	.102	.231**	.453**												
9	-.138	-.118	.220*	.155	.248**	.231**	.418**	.364**											
10	-.186*	-.166	.278**	.376**	.213*	.333**	.517**	.536**	.525**										
11	-.098	-.093	.209*	.326**	.154	.263**	.365**	.268**	.209*	.412**									
12	.420**	.498**	.096	.110	.194*	.045	-.189*	-.144	-.228**	-.210*	-.127								
13	.029	.238**	.438**	.418**	.419**	.296**	.180*	.204*	.087	.286**	.322**	.132							
14	.152	.244**	.254**	.225*	.309**	.122	-.146	.015	-.167	-.051	-.045	.432**	.452**						
15	-.123	-.049	.148	.111	.074	.075	.393**	.229**	.238**	.311**	.280**	-.261**	.170*	-.257**					
16	-.146	-.035	.164	.167	.075	.176*	.391**	.250**	.231**	.280**	.152	-.184*	.202*	-.147	.668**				
17	-.140	-.199*	.048	.006	.058	-.030	.275**	.172*	.359**	.296**	.215*	-.341**	.111	-.258**	.456**	.346**			
18	-.152	-.178*	-.055	.033	.024	.061	.172*	.039	.152	.220*	.196*	-.173*	-.053	-.222**	.282**	.234**	.281**		
19	.073	.082	.309**	.214*	.307**	.250**	.168	.205*	.124	.130	.252**	.075	.460**	.109	.166	.217*	.114	.154	
20	.218*	.271**	.073	-.015	.079	-.114	-.081	-.090	-.226**	-.173*	.067	.403**	.049	.426**	-.168	-.259**	-.194*	-.183*	-.201*

* p <.05, ** p<.01.

1=perceived intensity of the stressor, 2=appraisal of threat to self esteem,
3=importance of predictability, 4=importance of task control, 5=importance of self control,
6=importance of general control, 7=perceived predictability, 8=perceived task control,
9=perceived self control, 10=perceived general control, 11=feelings of accomplishment,
12=feelings of threat, 13=problem-focused coping, 14=emotion-focused coping
15=resolving the problem, 16=reducing the distress, 17=self efficacy in coping,
18=satisfactory resolution of encounter, 19=positive affect, 20= negative affect

Control Perception

The study used a novel approach to examine control perception. In addition to asking people to report the extent that they found the situation controllable (from 1: you had to accept, to 6: you could change or do something about it), respondents were asked to examine thirty-five control targets and to rate the extent that each control target was important in giving them a sense of control in the situation they reported (1:not at all, to 5: a great deal), then to rate the degree of control they actually had over the factor (from 1: none at all, to 5: a great deal). What is important for control (i.e. the focus of control) and how much control is perceived are an important distinction within the conceptualisation of control perception that the present study has focused on, and based on the principal component analyses described in Chapter 5 eight control perception scores were constructed to examine these two perspectives.

An examination of individuals general reports of control, revealed that 31.5%

of respondents reported that they had to accept the situation they described, 12% need to know more before they could act, 40% felt they could not deal with the situation in the way they wanted to because it would create difficulties for them, and only 16.5% felt they could change the situation. This suggests that most individuals generally felt constrained in some way when it came to taking control of the stressor.

Before examining the control perception scores that were constructed, single control targets were inspected, table 6.4 displays the ten control targets that were rated most important by respondents. This analysis showed that individuals vary considerably in the factors they perceive are important for them to have a sense of control in stressful situations, and therefore it is believed that assessments of control perception should not be reduced to merely having or not having control over a situation. Of the 35 control targets that were measured, individuals reported that on average 26.36 items (S.D = 8.82) were of some importance to them, although, fewer control items were very important to them to gain a sense of control over the situation (M=9.33 control items out of the 35 items listed, SD=7.7), and no single item was reported to be important to all respondents.

Table 6.4.

The Most Important Control Targets

Control target	Level of Importance mean (s.d)	Scale that item belongs to
Doing a professional job	3.98 (1.34)	general control
Being informed about things	3.81 (1.41)	predictability
Being clear about what has to be carried out	3.78 (1.41)	predictability
Having the support of others	3.75 (1.28)	general control
Being able to respond as you thought appropriate	3.66 (1.26)	predictability
Carrying on as best as you could	3.62 (1.19)	self control
Completing the job to your satisfaction	3.55 (1.55)	general control
By maintaining self control	3.53 (1.44)	self control
Having responsibility for the outcome	3.48 (1.44)	general control
Not allowing it to make you feel bad	3.45 (1.39)	self control

Range from 1-5, higher scores refer to a greater perceived importance

The control item rated most important to gain control of a stressor was "by doing a professional job" (M=3.98, SD=1.34), followed by "being informed about things" (M=3.81, SD=1.41) and "being clear about what has to be carried out" (M=3.78, SD=1.41). The ten items in table 6.4 represented three of the control perception scales that were constructed in the study: general control, self control and predictability. Items which loaded on the fourth scale, task control, were rated as less important by respondents.

After examining single control targets, the analysis inspected the control perception scores that were constructed from the principal component analysis, see table 6.2. In response to the question "how important was the factor in giving you control over the situation", employees rated predictability as the most important factor to give them a sense of control in the workplace (M = 3.41, SD = .98). Following this, they reported that self control (M = 3.31, SD = .99) and general control (M = 3.20, SD = 1.01) were important factors to gain control. On average respondents reported that having control over their work tasks (M = 2.81, SD = 1.25) was of less importance to them. This later result is interesting, given that many measures of control in the workplace are based on assessments of role autonomy. Yet it does not seem to represent a control mechanism that gives individuals any meaningful sense of control in a stressful situation.

When it came to examining perceived levels of control over these factors, the analysis revealed that respondents reported moderate levels of control across each of the different control perception scores. Individuals perceived greater self control (M = 2.59, SD = 1.04), followed by task control (M = 2.48, SD = 1.26) and reported lower scores for general control (M = 2.31, SD = 1.09). The analysis suggests that in general employees have less control over the factors they report are important to enhance their feelings of control in the situation.

Analysis of the control perception scores revealed significant inter-correlations, see table 6.3. For example, correlations among the scores that measured what control factors are important in the situation ranged from $r = .51$ to .63. Correlations among the control scores that measured the degree of control perceived were somewhat lower, ranging from $r = .36$ to .53. Correlations across the scores were also significant. For example, when individuals reported that it was important to have predictability they were also likely to report a high degree of predictability ($r = .346$, $p < .01$).

The analysis examined the relationship between control perception scores and independent and dependent variables. Control perception was found to be significantly related to situational feeling and emotion. These correlations suggested that greater feelings of accomplishment were associated with greater perceptions that task control was important (r = .326, p <.01), as well as general control (r = .263, p <.01), and predictability (r = .209, p <.05). In contrast the correlations suggested that greater feelings of threat were associated with perceptions that self control was important in the situation (r = .194, p < .05). Threat was also associated with less perceived self control (r = -.228, p < .01), general control (r = -.210, p = .01) and predictability (r = -.189, p < .05).

Control perception was also significantly correlated with coping behaviour. Control perception scores that assessed what control was important in the situation were correlated positively to problem-focused and emotion-focused coping. Correlations were found between problem-focused coping and importance of predictability (r = .438, p <.01), task control (r = .418, p <.01), self control (r = .419, p <.01) and general control (r = .296, p <.01), and between emotion-focused coping and importance of predictability (r = .254, p <.01), task control (r = .225, p <.05) and self control (r = .309, p <.01). These correlations suggested that when individuals reported it was important to have control over the different control facets they were more likely to use both problem and emotion-focused coping.

The control perception scores that measured the degree of control over different factors were associated with problem-focused coping, but not emotion-focused coping scores. Problem-focused coping was correlated with perceived general control (r=.286, p<.01), perceived task control (r=.204, p<.05) and perceived predictability (r=.180, p<.05), suggesting greater perceived control was associated with the use of problem-focused coping.

The analysis revealed that control perception was also related to the items that examined coping effectiveness. Significant correlations were found among the control perception scores that measured the degree of control perceived and coping effectiveness, but not with the scores that identified how important the control factors were. Perceived predictability was correlated with resolving the problem (r=.393, p=<01), reducing the distress (r=.391, p<.01) and self efficacy in coping (r=.275, p<.01), and these correlations suggest that greater perceived control is associated with greater coping effectiveness .

Situational Feeling And Emotions

Situational feeling and emotions were examined in the study as independent variables that were expected to influence the use of coping behaviour. The survey asked respondents to rate how their stressful situation had made them feel, and two scales were constructed to assess situational feelings of threat and situational feelings of accomplishment. Respondents reported greater feelings of threat (M = 2.62, SD=.79) than feelings of accomplishment (M = 1.64, SD=.64).

The analysis also found that situational feelings of accomplishment were associated with greater problem-focused coping (r= .322, p<.01), perceived effectiveness to resolve the problem (r= .280,p <.01), self efficacy in coping with the situation (r= .215, p <.01) and resolving the outcome to satisfaction (r= .196, p <.05). In contrast feeling threatened by the situation was significantly associated with use of emotion-focused coping (r = .432, p <.01) and negatively correlated with scores used to assess coping effectiveness. For example, self efficacy in coping (r = -.341, p <.01) and perceived effectiveness to resolve the problem (r = -.261,p <.01).

Coping Behaviour

The survey examined coping behaviour by using sixty-three items from the Dewe and Guest (1990) coping checklist. Overall, people used a variety of strategies to deal with the stressors that they reported (M=31.13, SD=11.75), although fewer strategies were reported on average to have been used a great deal (M=3.22, SD=4.04). This part of the analysis began by inspecting specific coping items and then the descriptive analysis of the coping behaviour scales were examined.

Table 6.5 displays the ten most commonly used coping strategy items. The most popular strategy, "try to think objectively about the situation and keep feelings in control", was used to some extent by 90.3% of the respondents, followed by the strategies "try to find out more about the situation" and "let people know exactly where you stand", which were used by 80.3% of respondents. Each of these items were categorised in the study as problem-focused coping, and inspection of the coping behaviour scores confirmed that problem-focused coping was used to a greater extent (M = 2.34, SD=.68) than emotion-focused coping (M =1.73, SD=.50).

Table 6.5.

Coping Strategies Most Commonly Used

Coping Strategy Item	Persons who used strategy %	Scale item belongs to
Try to think objectively about the situation and keep feelings in control	90.3	problem-focused
Try to find out more about the situation	80.6	problem-focused
Let people know exactly where you stand	80.6	problem-focused
Try to get advice and suggestions from someone else at work	80.6	problem-focused
Stand back and try to rationalise the situation	78.4	problem-focused
Express feeling and frustrations to others to let off stream	76.9	emotion-focused
Express feeling to others to think rationally about the problem	76.1	emotion-focused
Make sure people are aware you are doing your best	76.1	problem-focused
Consider a range of plans for dealing with situation - set priorities	70.1	problem-focused
Whenever possible give your opinion about how things are done	66.4	problem-focused

According to the transactional framework use of a particular form of coping behaviour does not imply that an individual will cope effectively with a stressor. Therefore, respondents in the survey were asked to rate the extent to which the coping strategies they used were effective in dealing with their stressful situation. These descriptive statistics are discussed next.

Coping Effectiveness

Perceived coping effectiveness was assessed by four items, self efficacy to cope with the situation, satisfaction with the outcome, the extent to which the coping strategies used, had been effective in resolving the problem and reducing distress. The item that measured coping efficacy ranged from 1-10, while the other items were rated on a 5 point scale. In each case higher scores suggested greater effectiveness. On average employees felt they had coped quite well with the stressor (coping self efficacy, M = 6.01, SD = 2.18) and were reasonably satisfied with the outcome of the situation (M = 3.50, SD = 1.19). Individuals reported that the coping strategies they used had been moderately effective in resolving the problem (M = 3.01, SD = 1.02) and reducing the distress associated with the stressor (M = 2.93, SD = .96).

Further analysis found that coping effectiveness was associated with coping behaviour. The correlation analysis found that the use of problem-focused coping was significantly correlated with resolving the problem (r = .170, p <.05) and reducing the distress (r = .202, p <.05). On the other hand, use of emotion-focused coping had a significant negative relationship with resolving the problem (r = -.257, p <.01), self efficacy in coping (r = -.258, p <.01) and satisfaction with the outcome (r = -.222, p <.01). These correlations suggest that greater use of problem-focused coping and less use of emotion-focused coping is associated with effective coping.

Having presented descriptive statistics and displayed intercorrelations between the main variables the remainder of the chapter will examine the second objective in the study. This was to explore the role of control in coping behaviour and coping effectiveness. The transactional model proposes that situational factors play an important role in the stress appraisal and coping process. A number of situational factors were measured in the main survey and the next section will examine these as predictors of coping behaviour and coping effectiveness.

Exploring the Role of Control in Coping Behaviour

The transactional model of stress (Folkman and Lazarus 1980, Lazarus and Folkman 1984) claims that situational appraisals are important factors which influence the coping process. Lazarus and his colleagues while mainly concerned with the role of primary appraisal (Folkman and Lazarus 1980, Folkman et. al. 1986b), also identified control perception, that is part of the secondary appraisal process, as a factor that predicts coping behaviour.

The nature of the transaction process implies that primary appraisal, secondary appraisal, and emotion have inter relationships (Folkman and Lazarus 1988), that in turn influence coping behaviour. However, few studies of work-related stress have examined the influence of situational feeling and emotions on coping or the inter relationships between these appraisal variables to influence coping behaviour. The correlations displayed in table 6.3. suggest there are associations. Overall, there are significant moderate correlations between the variables in the study. None of the correlations are greater than .80, and so it can be assumed that independent and dependent variables are associated and not overlapping in common variance. This suggests that it is appropriate to carry out multiple regression analysis to

examine these associations further.

A preliminary check was carried out to determine if variables in addition to dispositional affect would need to be controlled for in the study. Preliminary analyses examined the effect that dispositional affect, type of work stressor, perceived stress and two demographic variables: occupational status and length of time in current position, had on the two coping behaviour scores. Only dispositional affect appeared to predict coping behaviour scores and would be a control variable in the final analyses. None of the other variables were found to be significant predictors of either forms of coping behaviour and they were removed from the final analyses that are displayed.

Four separate multiple regression analyses were conducted to examine the direct and interactive effect that each of the variables, primary appraisal, situational feeling and emotions and control perception, has in predicting coping behaviour. The first two analyses predict the use of problem focused coping and the following two analyses predict emotion-focused coping. Also separate analyses were conducted to examine the effect of the two aspects of control perception: the factors that are important to gain control and the degree of perceived control. This was to reduce the number of interactions in each analysis.

Each analysis involved a five stage hierarchical multiple regression to determine the extent that, primary appraisal, situational feeling and emotions, control perception and the interaction terms of control perception with primary appraisal and, control perception with situational feeling and emotions, explained the variance in coping behaviour. The predictor variables were entered into the analyses in predetermined steps. The first stage of the analyses included the two scores that measure dispositional affect (positive and negative affect). These were entered first due to their role as control variables in the study.

Main effects for the three predictor variables; primary appraisal, situational feeling and emotions and control perception where entered in stage two, three and four of the analyses, respectively, to determine their unique contribution to the dependent variables. Control perception was entered last to determine the extent that it can explain the variance in the dependent measure over and above the influence that primary appraisal and situational feeling and emotions contributes. Primary appraisal was entered prior to situational

feeling and emotions, there is no theoretical proposition for the ordering of these appraisals (Folkman and Lazarus 1985), although it is recognised that emotion may be a signal that a situation is distressing (Cox 1985).

The fifth stage of the analyses involved the interaction terms that were constructed as recommended by Jaccard et. al. (1990), by standardising the variables before calculating the cross-product term. These interaction terms were calculated from the eight control perception scores and the primary appraisal score and, from the eight control perception scores and the two situational feeling and emotion scores. Thus, each analysis examined four control perception scores and consequently consisted of twelve interaction terms that were entered in the last step to determine the role of control as a moderator in the appraisal-coping relationship.

The procedures used to interpret interaction and main effects is briefly restated, these procedures have been described in Chapter 4. A moderating effect was interpreted following the procedure recommended by Stone (1990). The effect of moderation is accepted if the percentage of variance that signifies the interaction term is significantly different from the previous step, as calculated by the F statistic. There is considerable debate regarding the interpretation of main effects in relation to the testing of interaction effects. The analyses followed the procedures recommended by Finney, Mitchell, Cronkite and Moos (1984) and Jaccard et. al. (1990), who suggest that main effects can still provide meaningful information even when interaction effects are significant. They suggest under these circumstances it is appropriate to think of a variable displaying a main effect as an average effect of that variable on the dependent variable. They also recommend that when interaction effects are not present main effects should be interpreted by retaining the multiplicative model. The first set of analyses examines the factors that predict the use of problem-focused coping.

1. Predicting the Use of Problem-Focused Coping

Table 6.6 contains the results that use the control perception scores that identify the factors that are important for control in the situation, this model was significant and accounted for 47 percent of the variance (Adjusted R^2 was 37 percent of the variance). Table 6.7 examines the scores that measure the degree of control individuals perceive, this model was also significant and accounted for 47 percent of the variance (Adjusted R^2 was 38 percent of the variance). The statistical tables include the cumulative squared multiple correlation values, the incremental variance that each stage of the analysis contributed, standardised beta coefficients from the full model and their associated significance levels.

Inspection of these tables revealed that inclusion of the interaction terms, between control perception, primary appraisal and situation feeling and emotions did not account for a significant amount of the variance above the main effect that these variables contributed to predicting problem-focused coping. However, once dispositional affect, primary appraisal and situational feeling and emotion were controlled, control perception had a significant main effect. The scores that identified what factors were important for control accounted for 8 percent of the variance in predicting problem-focused, while the scores that reported the degree of perceived control explained 6 percent of the variance. In the final step of the analyses, importance for predictability $b = .145$, $p = < .05$, see table 6.6, and perceived general control $b = .178$, $p = < .05$, see table 6.7, emerged as predictors of problem-focused coping. The beta coefficients suggest that when employees consider that having predictability in the situation is an important factor to gain control and when they perceive greater control in general they use more problem-focused coping.

There was also evidence that problem-focused coping is influenced by affect and primary appraisal. Dispositional affect explained up to 22 percent of the variance, and after controlling for this, situational feeling and emotion explained 6 percent of the variance. Primary appraisal accounted for 2 percent of the variance. At the final step in each of these analyses, positive affect, primary appraisal and situational feelings of accomplishment showed significant main effects in predicting problem-focused coping.

Table 6.6.

Moderated Multiple Regression Analysis Predicting The Use Of Problem-Focused Coping From The Scores That Identify The Factors Important For Control

Predictor	R^2	$R^2_{ch.}$	*FChange*	*d.f*	*b*	β
Step 1						
Positive affect					.031	.286**
Negative affect	.225	.225	19.039***	2,131	.003	.027
Step 2						
Appraisal of threat to self esteem	.253	.028	4.787*	1,130	.150	.203*
Step 3						
Feeling accomplished					.243	.228**
Feeling threatened	.314	.061	5.722**	2,128	-.023	-.027
Step 4						
Task control					.067	.122
Predictability					.145	.207*
Self control					.056	.080
General control	.395	.081	4.172**	4,124	-.084	-.123
Step 5						
task x threat to self esteem					-.000	-.008
pred x threat to self esteem					-.031	-.046
self x threat to self esteem					.000	.001
general x threat to self esteem					-.019	-.029
task x feeling accomplished					-.099	-.114
pred x feeling accomplished					-.137	-.117
self x feeling accomplished					.098	.093
general x feeling accomplished					.103	.090
task x feeling threatened					-.091	-.137
pred x feeling threatened					-.092	-.130
self x feeling threatened					-.031	-.042
general x feeling threatened	.470	.075	1.323	12,112	.153	.213

Overall F = 4.739 p = 000, Total Adjusted R^2 = .371
Coefficient *b and b* are computed at the final step of the analysis ****p <. .001, ** p < .01 , * p <.05 (significance of beta coefficients tested using two tailed tests).*

Table 6.7.

Moderated Multiple Regression Analysis Predicting The Use Of Problem-Focused Coping From The Scores That Identify The Degree Of Control Over These Factors

Predictor	R^2	$R^2_{ch.}$	*FChange*	*d.f*	*b*	β
Step 1						
Positive affect					.033	.309***
Negative affect	.225	.225	19.039***	2,131	.019	.131
Step 2						
Appraisal of threat to self esteem	.253	.028	4.787*	1,130	.182	.247**
Step 3						
Feeling accomplished					.221	.207*
Feeling threatened	.314	.061	5.722**	2,128	.003	.004
Step 4						
Task control					-.032	-.058
Predictability					.058	.073
Self control					-.021	-.032
General control	.381	.067	3.367**	4,124	.178	.284*
Step 5						
task x threat to self esteem					-.161	-.269*
pred x threat to self esteem					.212	.246*
self x threat to self esteem					-.061	-.084
general x threat to self esteem					.023	.034
task x feeling accomplished					-.011	-.012
pred x feeling accomplished					-.125	-.083
self x feeling accomplished					.191	.156
general x feeling accomplished					-.069	-.065
task x feeling threatened					.063	.093
pred x feeling threatened					-.294	-.318*
self x feeling threatened					.038	.049
general x feeling threatened	.478	.097	1.726	12,112	.204	.264

Overall F = 4.880 p = 000, Total Adjusted R^2 = .380
Coefficient *b and b* are computed at the final step of the analysis ****p <. .001, ** p < .01 , * p <.05 (significance of beta coefficients tested using two tailed tests).*

2. Predicting the Use of Emotion-Focused Coping

The next step in the analysis was to examine the use of emotion-focused coping behaviour. The full model using the scores that measure the factors important for control (table 6.8) was significant and accounted for 40 percent of the variance in emotion-focused coping scores (Adjusted R^2 36 percent). The model that uses the scores that measure degree of control (table 6.9) was also significant accounting for 46 percent of the variance (Adjusted R^2 29 percent).

Inclusion of the interaction terms was significant in the first model only (table 6.8). At the final step of this analysis one significant interaction term was found, this was the importance for self control x appraisal of threat to self esteem *(b =-.155 p =<.01).* At the final step in both the analyses, control perception did not have a significant main effect in predicting emotion-focused coping.

The analysis also found that negative affect accounted for twenty-two percent of the variance and that after controlling for dispositional affect, situational feelings of threat explained five percent of the variance. At the final step of the analysis situational threat emerged as a significant predictor of emotion-focused coping (*b =.133, p =<.01,*(table 6.8) *and b =-.170 p =<.01,* (table 6.9). In determining the main effects, the beta coefficients suggest that after controlling for dispositional affect, greater use of emotion-focused coping is associated with an individual perceiving a situation as threatening.

To determine the nature of the interactive relationship between control perception and primary appraisal subjects scores on the measure of self control importance were divided into low (1 Sd below the mean) and high (1 Sd above the mean) as recommended by Cohen and Cohen (1983). Following the procedure that Jaccard et. al. (1991) adopt, separate regression analyses were run to calculate the emotion-focused coping scores for these two groups. This method maximises the subgroup analysis, and controls the main effects when examining the slope of the regression lines between the low and high control groups. The interaction between self control importance and primary appraisal on emotion-fcoused coping is presented graphically in Figure 6.1.

Table 6.8.

Moderated Multiple Regression Analysis Predicting The Use Of Emotion-Focused Coping From The Scores That Identify The Factors Important For Control

Predictor	R^2	$R^2_{ch.}$	*FChange*	*d.f*	*b*	β
Step 1						
Positive affect					.007	.101
Negative affect	.221	.221	18.598***	2,131	.033	.318***
Step 2						
Appraisal of threat to self esteem	.232	.011	1.917	1,130	.010	.019
Step 3						
Feeling accomplished					-.132	-.170
Feeling threatened	.286	.054	4.836**	2,128	.133	.212*
Step 4						
Task control					.060	.149
Predictability					.042	.082
Self control					.048	.095
General control	.339	.053	2.482*	4,124	.005	.011
Step 5						
task x threat to self esteem					.073	.183
pred x threat to self esteem					.009	.019
self x threat to self esteem					-.155	-.318**
general x threat to self esteem					-.022	-.048
task x feeling accomplished					-.032	-.050
pred x feeling accomplished					-.073	-.085
self x feeling accomplished					-.054	-.071
general x feeling accomplished					.137	.165
task x feeling threatened					-.059	-.121
pred x feeling threatened					-.069	-.134
self x feeling threatened					-.027	-.050
general x feeling threatened	.468	.128	2.53*	12,112	.079	.151

Overall F = 4.687 p = 000, Total Adjusted R^2 = .368
Coefficient *b and b* are computed at the final step of the analysis ****p <. .001, ** p < .01 , * p <.05 (significance of beta coefficients tested using two tailed tests).*

Table 6.9.

Moderated Multiple Regression Analysis Predicting The Use Of Emotion-Focused Coping From The Scores That Identify The Degree Of Control Over These Factors

Predictor	R^2	$R^2_{ch.}$	*FChange*	*d.f*	*b*	β
Step 1						
Positive affect					.010	.132
Negative affect	.221	.221	18.598***	2,131	.033	.316**
Step 2						
Appraisal of threat to self esteem	.232	.011	1.917	1,130	.027	.050
Step 3						
Feeling accomplished					-.057	-.073
Feeling threatened	.286	.054	4.836**	2,128	.170	.272**
Step 4						
Task control					-.043	-.075
Predictability					.090	.248
Self control					.007	.015
General control	.317	.031	1.401	4,124	-.016	-.035
Step 5						
task x threat to self esteem					-.021	-.048
pred x threat to self esteem					-.118	-.187
self x threat to self esteem					-.145	-.273
general x threat to self esteem					.172	.349
task x feeling accomplished					-.057	-.089
pred x feeling accomplished					-.171	-.157
self x feeling accomplished					.069	.078
general x feeling accomplished					.055	.071
task x feeling threatened					.148	.296
pred x feeling threatened					-.050	-.074
self x feeling threatened					.092	.159
general x feeling threatened	.407	.090	1.420	12,112	-.175	-.310

Overall F = 3.667 p = 000, Total Adjusted R^2 = .296
Coefficient *b and b* are computed at the final step of the analysis ****p <. .001, ** p < .01 , * p <.05 (significance of beta coefficients tested using two tailed tests).*

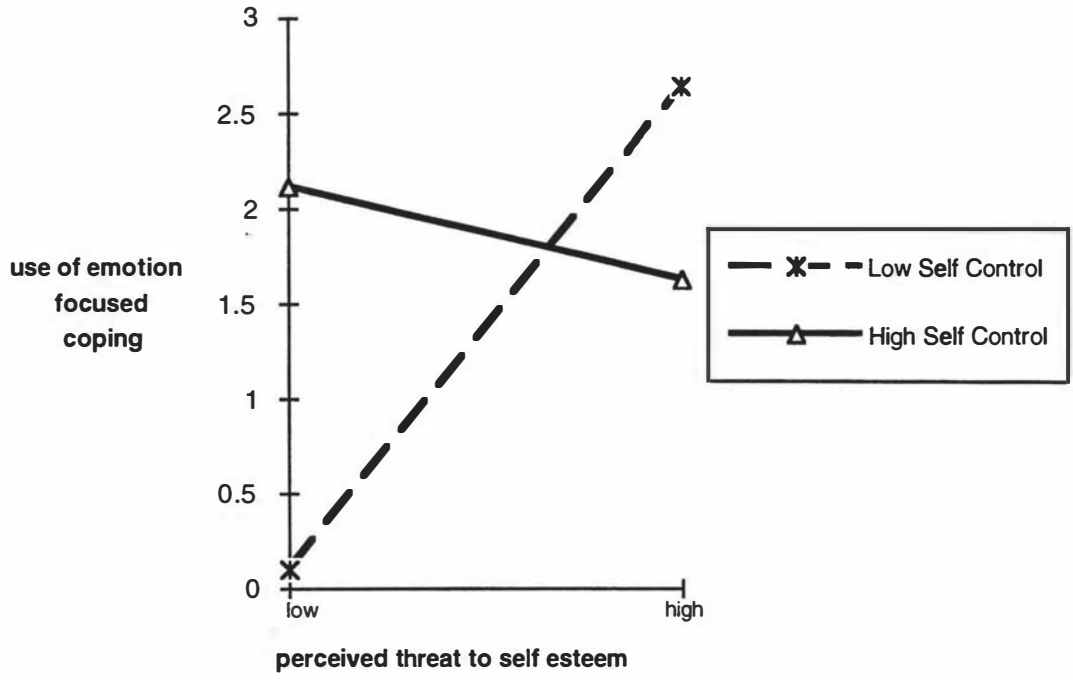

Figure 6.1.

The Interaction of Self Control x Appraisal on Emotion-Focused Coping

Figure 6.1 presents the regression lines of primary appraisal on emotion-focused coping, plotting the groups for low and high self control importance. This reveals that the pattern of use in emotion-focused coping, has reverse effects depending on the importance that self control is given (the moderator) and the level that the stressor was appraised as threatening to one's self esteem. It appears that the group of individuals who place importance on self control (high self control group) use emotion-focused coping at a fairly constant level regardless of their perception of primary appraisal. On the other hand, the group of individuals who rate self control as less important (low self control group) vary significantly in their use of emotion-focused coping. Those individuals who perceived the situation as threatening to their self esteem used greater emotion-focused coping, than those individuals who did not perceive the situation as threatening.

Summary Of The Results Predicting Coping Behaviour

In summary, the moderated multiple regression analyses that were carried out to examine the role of control perception in coping behaviour suggest that after adjusting for dispositional affect, primary appraisal, situational feeling and emotions and perceived control emerged as significant predictors of the use of problem-focused coping. The analysis showed that perceived control did not have a main effect in predicting emotion-focused coping, rather importance of self control was found to interact with primary appraisal. Also, the analysis found that situational feelings of threat have a significant main effect on the use of emotion-focused coping. The chapter now turns toward examining the influence that control perception and coping behaviour, have on perceived coping effectiveness.

Predicting Coping Effectiveness

Researchers have also been interested in examining the factors that predict effective coping. According to appraisal theory specific coping behaviours should not be viewed as more or less effective per se (Folkman and Lazarus 1980). As part of the second objective in the study the goodness of fit hypothesis was tested, this was outlined in Chapter 3. It essentially proposes that when situations are appraised as controllable, coping will be effective with the use of problem-focused coping behaviour and maladaptive with the use of emotion-focused coping. In contrast, when individuals perceive situations have limited control the reverse coping pattern is thought to be effective, that is emotion-focused coping will be effective and the use of problem-focused coping will be ineffective.

According to Folkman (1992) coping effectiveness can be determined through the use of both proximal and distal outcome measures. Proximal measures refer to short-term outcomes, such as the immediate outcome of a stressor or situational affect and mood, while distal outcomes refer to long term outcomes, such as general-well being and depression. According to Folkman et. al. (1986a) the relationship between appraisal, coping behaviour and long term outcomes will arise when stable patterns of appraisal and coping behaviour occur, and it has been suggested that long term outcomes may be too distal in predicting the specific effects of coping (Folkman 1992). The study focused on a single encounter and therefore it was thought it would be more appropriate to focus on the immediate outcome of a single situation as the measure of coping effectiveness. Multiple outcome measures are recommended as more useful to examine the effects of coping behaviour (Folkman 1992), and

therefore employees were asked to rate their perceived self efficacy to cope with the situation, the extent to which the outcome was resolved to their satisfaction and the extent to which the coping strategies they used were effective in resolving the problem and reducing the distress. Each of these four scores were treated as separate dependent variables.

A three-stage hierarchical multiple regression analysis was conducted to determine the extent that control perception, coping behaviour and the interaction of control perception and coping behaviour predicted each of the four coping effectiveness scores. Control was measured by the four control perception scores that assessed the degree of control perceived, the correlations in table 6.3 showed that these scores were related significantly to coping effectiveness, and this made more intuitive sense.

The predictor variables, perceived control and coping behaviour were entered in step one and two, in that order respectively, so as to examine their unique contribution to coping effectiveness. Step three involved eight interaction terms between the four control perception scores and problem and emotion-focused coping. The goodness of fit hypothesis would be supported if the interaction terms were significant at step three, as calculated by the F statistic.

The analysis revealed that the model proposed to predict an individual's perceived satisfaction with the outcome did not have a significant overall F statistic ($F=1.138$, $p=.333$), suggesting that control perception and coping behaviour and their interaction, as proposed by the goodness of fit hypothesis did not contribute significantly to explaining the outcome satisfaction scores. This model is not reported.

The overall F statistic for the model predicting coping self efficacy, resolution of the problem and distress reduction were significant, these are displayed in tables 6.10 - 6.12. In predicting coping self efficacy, control perception and coping behaviour accounted for 27 percent of the variance (Adjusted R^2 of 19 percent), in predicting resolution of the problem they accounted for 34 percent of the variance (Adjusted R^2 of 26 percent), and in predicting reduction in distress they accounted for 33 percent of the variance (Adjusted R^2 of 25 percent).

Table 6.10.

Moderated Multiple Regression Analysis Predicting Coping Self Efficacy

Predictor	R^2	$R^2_{ch.}$	*FChange*	*d.f*	*b*	β
Step 1						
Perceived task control					-.028	-.016
Perceived predictability					.280	.116
Perceived self control					.454	.219
Perceived general control	.122	.122	4.482**	4,129	-.053	-.027
Step 2						
Problem-focused coping					.578	.183
Emotion-focused coping	.212	.090	7.231***	2,127	-1.590	-.368***
Step 3						
task x problem-focused coping					.264	.104
pred x problem-focused coping					.053	.015
self x problem-focused coping					.050	.017
gen x problem-focused coping					-.836	-.296
task x emotion-focused coping					.346	.103
pred x emotion-focused coping					.122	.026
self x emotion-focused coping					-.287	-.067
gen x emotion-focused coping	.277	.066	1.351	8,119	-.408	-.107

Overall F = 3.263, p = .000, Total Adjusted R^2 = .192
Coefficient *b and b* are computed at the final step of the analysis ****p <. .001, ** p < .01 , * p <.05 (significance of beta coefficients tested using two tailed tests).*

Table 6.11.

Moderated Multiple Regression Analysis Predicting The Extent That The Coping Strategies Used Resolved The Problem

Predictor	R^2	$R^2_{ch.}$	*FChange*	*d.f*	*b*	β
Step 1						
Perceived task control					-.020	-.028
Perceived predictability					.357	.316*
Perceived self control					-.000	.000
Perceived general control	.190	.190	7.576***	4,129	.138	.148
Step 2						
Problem-focused coping					.309	.209*
Emotion-focused coping	.300	.110	9.987***	2,127	-.661	-.326*
Step 3						
task x problem-focused coping					-.111	-.093
pred x problem-focused coping					.347	.212
self x problem-focused coping					-.075	-.055
gen x problem-focused coping					.063	.048
task x emotion-focused coping					.029	.018
pred x emotion-focused coping					-.254	.113
self x emotion-focused coping					-.265	-.133
gen x emotion-focused coping	.345	.045	1.018	8,119	.355	.199

Overall F = 4.479, p = .000, Total Adjusted R^2 = .268
Coefficient *b and b* are computed at the final step of the analysis ****p <. .001, ** p < .01 , * p <.05 (significance of beta coefficients tested using two tailed tests).*

Table 6.12.

Moderated Multiple Regression Analysis Predicting The Extent That The Coping Strategies Used Reduced Distress

Predictor	R^2	$R^2_{ch.}$	*FChange*	*d.f*	*b*	β
Step 1						
Perceived task control					.060	.079
Perceived predictability					.239	.225*
Perceived self control					.065	.071
Perceived general control	.197	.197	7.913***	4,129	.087	.100
Step 2						
Problem-focused coping					.304	.218*
Emotion-focused coping	.262	.065	5.567**	2,127	-.403	-.212*
Step 3						
task x problem-focused coping					-.033	-.030
pred x problem-focused coping					.390	.254
self x problem-focused coping					-.151	-.118
gen x problem-focused coping					.080	.065
task x emotion-focused coping					-.107	-.072
pred x emotion-focused coping					.020	.011
self x emotion-focused coping					-.421	-.225
gen x emotion-focused coping	.331	.069	1.528	8,119	.262	.157

Overall F = 4.197, p = .000, Total Adjusted R^2 = .252
Coefficient *b and b* are computed at the final step of the analysis ****p <. .001, ** p < .01 , * p <.05 (significance of beta coefficients tested using two tailed tests).*

Further inspection of these analyses revealed that at step three the interaction terms between control and coping behaviour did not significantly increase the variance above that influenced by their main effects. This is evidence that the present study failed to find support for the goodness of fit hypothesis with respect to each of the short term outcomes that were measured. However, the analyses found that perceived control and coping behaviour have significant main effects in predicting coping effectiveness.

In the model predicting coping self efficacy (table 6.10), perceived control explained twelve percent of the variance, and coping behaviour nine percent of the variance. At the final step of the analysis only use of emotion-focused coping was a significant predictor of coping self efficacy *(b = -.368, p =.001).*

In predicting the extent that the coping strategies that had been used, had been effective in resolving the problem (table 6.11), perceived control explained nineteen percent of the variance, and coping behaviour eleven percent of the variance. At the final step of the analysis perceived predictability *(b =-316, p < .01),* problem-focused coping *(b =-.209, p < .05),* and use of emotion-focused coping *(b =-.326, p < .001)* were significant predictors of problem resolution.

The final analysis predicted the extent that the coping strategies that had been used were effective in reducing distress (table 6.12). In this analysis perceived control explained nineteen percent of the variance, and coping behaviour six percent. At the final step of the analysis perceived predictability *(b =-.225 p < .05),* problem-focused coping *(b =.218, p < .05),* and use of emotion-focused coping *(b =-.212p < .01)* were significant predictors of reduced distress.

Summary Of The Results Predicting Coping Effectiveness

Overall, the beta coefficients from the analyses consistently suggested that when individuals reported using emotion-focused coping strategies they also reported lower self efficacy in coping, and felt that the strategies they had used had not been effective in resolving the problem, nor in reducing the distress. Whereas, when they reported using greater problem-focused coping and perceived a high degree of predictability in the situation they reported greater effectiveness in resolving the problem and reducing distress. This seems to suggest that the sample found problem-focused coping more effective for dealing with work stressors than emotion-focused coping.

Chapter Summary

This chapter has displayed descriptive statistics and inter-correlations and examined the second objective of the study, which was to use the control scale developed in the study to examine the role of control in predicting coping behaviour and coping effectiveness. Generally the evidence that was found would suggest that control perception plays an important role in predicting coping behaviour and to a lesser extent in determining coping effectiveness. Chapter 7 will discuss these results further, and in light of relevant findings in the literature.

Chapter 7

DISCUSSION

To advance occupational stress, researchers recognise the need to pay more attention to components of the stress process that are proposed by the transactional model, such as cognitive appraisal and coping (Dewe 1993, Brief and George 1991, Kahn Bysioere 1991). By exploring the process of appraisal and coping in relation to work stressors it is possible to examine in detail the relationship between specific stressors and organisational and individual outcomes as a transactional process and to gain a deeper understanding of the dynamic relationship that occurs between individuals and their environment.

It is generally accepted that theory should guide research directions and the development of assessment procedures (Moos and Swindle 1990). However, the way that the transactional model is applied to the study of work-related stress needs to be carefully thought out (Brief and George 1991). The contextual nature of the workplace has meant that organisational researchers have paid a great deal of attention to environmental characteristics. The transactional approach places more importance on the cognitive appraisals that individuals make of work conditions, than the work conditions themselves (Lazarus 1991). However, for occupational stress research, it is perhaps important to distinguish between the environmental stressors and how they are appraised and coped with by most workers (Brief and George 1991, Moos and Swindle 1990).

Recent empirical studies investigating work-related stress have explored the distinction between work stressors and their appraisal. For example, Dewe (1993) found that work stressors could be distinguished by the factor that made the situation demanding for individuals (primary appraisal). This work is encouraging and occupational stress researchers should continue to examine cognitive appraisal processes. More attention needs to be paid to the process of secondary appraisal. This is what this research has set out to do.

Secondary appraisal involves an individual's evaluation of control, and it is this construct that has for some time been recognised as an important variable in the stress and coping process. How control is measured has important

implications for our overall conceptualisation of secondary appraisal and the stress process.

It was in order to address the lack of attention that has been paid to the measurement of situational control, that the present study set out to explore the way that individuals perceive control and to develop a measure of control that takes into account the nature of control from this point of view. This measure was then used to examine the role that control plays in the overall stress appraisal and coping process.

To achieve these goals, Stage 1 (the pilot study) of the project began with an exploratory examination of individuals control perceptions in the workplace. The objective of this stage was to develop a measure of control that could be used to identify the specific control targets that give meaning and significance to these perceptions. In Stage 2 (the main study), control perception and other variables were measured in an attempt to determine their influence on coping behaviour and coping effectiveness.

Principal component analyses was used in the main study to evaluate four scales that measured primary appraisal, control perception, situational feeling and emotions, and coping behaviour. Hence, the psychometric evaluation of these scales constituted an important contribution of the study.

The first part of this chapter will focus on the measures that were used to assess control perception and coping behaviour and considers a number of issues related to the psychometric properties of these scales. The remainder of the chapter will discuss the findings of the multiple regression analyses that were carried out to explore the role of control in the stress process.

The Measurement Of Control Perception

The primary objective of the study was to develop a scale of control perception to evaluate the process of secondary appraisal of specific work-related stressors. The scale that was developed is more fine-grained than single item measures that have been used to evaluate situational control in other studies. First, because it consists of thirty-five items that identify potential targets for an individual to control, and second, because it examines control perception from two perspectives: what an individual perceives it is important to control, as well as the degree of control that the individual perceives over these targets.

Measuring situational control in this way is believed to be important for two reasons. The first reason is because it has been guided by theory (Lazarus and Launier 1978, Folkman 1984). According to the cognitive-relational theory of stress, appraisal is shaped by the meaning that an individual gives to an encounter and, the appraisal process is said to capture the unique relationship that an individual has with their environment (Lazarus and Launier 1978). This means that in secondary appraisal, where control perception is paramount, it is essential to take into account what the individual means by control and what this control is over (Folkman 1984). Consequently, the measure developed in the study, explicitly requests individuals to focus on specific control targets, to identify which targets are important in gaining control in stressful encounters and to evaluate the degree of control over these targets that is experienced.

A second important reason for measuring control perception in this way, is that it clearly avoids the assumption that control is a unidimensional concept where we either have control or we do not. The findings of the study support the rejection of this one-dimensional view. For example, a typical control scale requests an individual to report the extent that a situation is amendable to change. In the present study there was a five item choice ranging from 'the situation was one that you could change or do something about' to 'the situation had to be accepted'. The analysis found that 16.5% of respondents felt they could change their situation and 31.5% felt they must accept it. The remaining 52% felt constrained in some way by unspecified difficulties, but did not consider that it was simply a matter of accepting the situation. This meant that in total 83.5% of respondents felt they had to accept or felt in some way constrained by the situation, and of these individuals only 12% could specify the nature of their constraint, for example, a lack of information. Furthermore, the nature of this kind of question makes it impossible to discern what it is that individuals perceive they either lack control over or have control of. It follows that individuals do not always see their situation as one that is simply changeable or not. Perceptions of control are just not that black and white.

The present findings suggest that it is much more likely that when an individual evaluates their perceptions of control, that they perceive control in a number of different ways as targeted simultaneously over different factors, and as exercised to varying degrees. It is only a complete sum of these factors that will give a greater or lesser sense of control in a stressful situation. On average individuals reported that at least nine of the thirty-five control targets

were very important to gain control and they generally reported that they had less control over these targets than they desired, but again, this dissatisfaction varied depending on the specific target. Thus, it makes sense to view control as a multifaceted concept, although, it is recognised that such a complex cognitive process may not be consciously perceived by individuals in this way.

The thirty-five control targets were not intended as an exhaustive list. It is perhaps a strength of the study that the list is based on responses obtained from individuals surveyed in Stage 1 rather than being developed from the literature. Therefore the scale is based on employees perceptions of what it means to have control in the workplace. The responses from open-ended questions made it possible to identify these control targets that emerged from descriptions of specific workplace incidents that individuals described as being controllable and uncontrollable. Five broad themes were identified by this process: autonomy, predictability, interpersonal control, responsibility over the outcome and self control. However, in the principal component analysis carried out in the main study, these five control themes were condensed into four distinct facets of control. Analysis of the items that were devised to measure interpersonal control and responsibility over outcomes did not sustain these as distinct facets. Although, at an intuitive level it remains plausible that these themes are genuinely distinct. Analysis of control perception has traditionally focused on control over outcomes and as Sutton and Kahn (1986) point out that control is not only about the effective influence of events and things but about controlling others. Thus, at an intuitive level, maintaining interpersonal control and outcomes as separate facets in the measurement of control continues to be appealing. Further item development and conceptual clarification of these themes as targets of control seems to be necessary.

The findings from the study suggest that control perception should be viewed as multifaceted. Given the broad nature of control research to date reviewed in Chapter 3, this seems to be the next step in measuring control. The results show that the different facets of control were not all perceived to be of equal importance to individuals, and that individuals could have more or less control over different situational factors. In general less control was perceived over the factors that were reported to be important, and this is thought to be the case for a majority of employees (Greenberger and Strasser 1986). It is not surprising that individuals desire more control than they possess, but what is interesting is that facets of control like autonomy that are traditionally assumed to be

important to individuals in the workplace per se, were not perceived by the respondents to be all that important in gaining a sense of control over stressful incidents. An analysis was also carried out to determine whether the control targets varied in their level of importance depending on the nature of the work stressor reported. For example, it would have been plausible that autonomy over work tasks could be important under certain work stressor circumstances. However, this analysis showed that perceptions of the importance of specific control targets did not differ by the nature of the work stressor. On average individuals reported that predictability and self control were the most important factors contributing to the control of the work stressors that they reported and autonomy was the least important.

Organisational research has a long tradition of identifying work domains in which people experience more or less personal control (Hackman and Oldham 1975, Karasek 1979, Spector 1986). In the work context this has provided a great deal of insight into the environmental aspects of control. However as Newtown (1989) points out, it is time to move away from an approach that tells us 'how much is there of X'. We now need to understand what aspects of control give individuals a genuine sense of control when dealing with problematic situations (Schwalbe 1985). The present study has attempted to take up this challenge by explicitly asking individuals to identify what they direct their control towards and, in a low control environment such as the workplace, it becomes obvious that a sense of individual control is not just about controlling outcomes or changing external circumstances, it is also about internal control mechanisms, such as self control and the ability to predict future circumstances.

If as the findings suggest, individuals do discriminate control targets and make conscious choices to target different aspects of a problematic event, then it is possible that the coping behaviour that follows may be influenced not only by the situational availability of control mechanisms but also by particular styles of control seeking. However, this aspect was not specifically examined in the study and further investigation of this issue would be necessary to determine whether patterns of control seeking exist. This could be done by examining individual perceptions of control in different situations.

Four Facets Of Control

The scales that were developed referred to four facets of control. These were task control, predictability, self control and general control. These aspects of control are not new. They have all to some extent been identified in the literature. However, the key contribution of the present study is the multifaceted view of control, the bringing together of these four facets in an attempt to examine in a more holistic way, what it is that individuals target their control towards and what they perceive to be important in controlling stressful situations.

Although researchers have recognised for some time now that it is necessary to incorporate what individuals desire in the way of control mechanisms (Schwalbe 1985), the conceptualisation of control has been too limited to carry that out. For example, while Greenberger et. al. (1989) asked individuals how much control they desired and how much control they possessed, control itself was examined purely in terms of role autonomy. The present study asks the same questions but attempts to go much further in the conceptualisation of control within the workplace. Of the four distinct facets of control that were examined in the present study, task and general control cover the more traditional aspects of workplace control, whereas predictability and self control involve a much more broader view of control. The view that control perception should be measured as a multifaceted construct is continuing to emerge in literature on work-related stress (Dwyer and Ganster 1991, Ganster 1989, Sutton and Kahn 1986). The findings of this study provide further support for this view.

1. Task Control

The task control items are similar to those that are used in the literature to measure role autonomy. They focus on the level of control that individuals have to carry out their tasks. Specifically they identify the control an individual has over their time and over the method they use to carry out tasks. Jackson et. al. (1993) found that these two aspects of autonomy are statistically distinct, although this conclusion was not supported by the data analysis in the present study.

Individuals did not rate task control very highly in comparison to the other facets of control. The results show that task control was rated as somewhere between a little and fairly important (M=2.81, SD=1.25). Also, while individuals

on average reported less perceived control over their tasks (M=2.48, SD=1.26) than they thought was important, their perceptions of control over this facet was no greater or less than what they perceived over other facets. The analysis found that perceived control over tasks was not associated with coping behaviour, nor coping effectiveness. This is an interesting result because control in the workplace is commonly equated with role autonomy. It follows that if role autonomy doesn't contribute all that much to an individuals sense of control when faced with a problem situation, then it is unlikely to be a good predictor of individual behaviour or an important buffer of work demands as has been proposed (Karasek 1979).

The reliability coefficients for the task control items were high .91 and .90 respectively, in the two analyses that examined what is important, and how much control was perceived. The face validity of the items gives us some confidence that the two scales do assess autonomy over work tasks. However, only five of the eight items that loaded as task control were consistent across both analyses, so it seems that further item refinement is still necessary.

2. Predictability

Predictability in the work environment is a second facet of control that emerged from the analysis. This concept has been associated with control in the general stress literature for some time (Averill 1973, Miller 1981). Unfortunately it has received less attention in the occupational stress field and it has rarely been used in measures of workplace control. The exception are the studies by Tetrick and La Rocco (1987) and Dwyer and Ganster (1991).

The items that represent predictability in the control scale refer to information deficiency and to a general perception of predictability. Reliability coefficients for both analyses was good, at .87 for each analysis. A total of ten items referred to predictability and nine of these loaded together on both analyses. This gives us confidence that these nine items share a common theme.

Respondents reported that predictability was of considerable importance in gaining a sense of control (M=3.41, SD=.98). However, on average their degree of perceived predictability was not all that high (M=2.37, SD=.90). There is considerable evidence in the stress literature that suggests that having predictability decreases the negative impact of stress (Miller 1981). However, few organisational studies have examined how predictability is associated with the coping process. The present study found that perceptions

of the importance of predictability are associated with the use of problem-focused coping. Detailed results are discussed later in the chapter.

3. Self Control

The third facet that emerged from the analysis was labelled self control. To the best of my knowledge this facet of control has not been previously used in measures of control perception in occupational stress.

Self control has been identified as a form of coping behaviour. It refers to "the process by which individuals consciously decide to take charge of their own behaviour" (Rosenbaum 1993, p33), but it has not been previously examined as part of control perception. It is important to remind the reader that the process of secondary appraisal is a complex one. It is an appraisal of the stressor that takes into account available coping strategies and, to this extent, is a part of the coping process, but only as an evaluation of the possibilities for control, and is distinct from the coping behaviour itself. Furthermore, when examining targets of control it is quite reasonable to examine whether an individual's perception of control is focused on internal control mechanisms, such as self control, as well as external control mechanisms, such as control of workplace outcomes and environmental constraints.

Seven items were designed to measure this aspect of control. Six of these items loaded together on both analyses. These items each focus on internal factors and suggest a conscious decision to control how one reacts to a stressor. At .79 and .89, respectively the reliability of this facet of control was moderate to high for the scores measuring what is important for control and to what degree control is perceived, respectively. Also, in terms of face validity, these items can be considered to define a distinct facet of control.

The Stage 1 study showed that some individuals perceived control purely in terms of self control, and in the main study self control was also reported to be an important component of stress appraisal (M=3.31, SD=.99). While the perceived control scores for all the control facets were generally lower than the scores that examined what was important for control, on average respondents reported having greater self control (M=2.60, SD=1.05) in the situation, than they did having control over other facets. This is hardly surprising, according to Rosenbaum (1993) external control may often be limited but, even in low control circumstances, individuals self control is limitless. Therefore, it seems to be important to include self control as a

potential target of an individual's perception of control, because, as we have seen from the literature, situations that lack control over outcomes are not always associated with distress or negative outcomes (Averill 1973). In low outcome-control situations it seems that individuals may seek a sense of control in other ways (Thompson and Spacapan 1991, Thompson, Sobolew-Shubin, Galbraith, Schwankovsky and Cruzen 1993), although in the present study a sense of self control was not a significant predictor in perceived coping effectiveness. Another interesting aspect of self control is revealed by the results of the multiple regression analyses, which found that this facet of control was associated with the use of emotion-focused coping behaviour. These results are discussed later in the chapter.

4. General Control

The final facet of control to emerge from the analysis was labelled general control. This facet of control was much broader than the other control dimensions. It represents control of several broad aspects of the workplace, such as control over outcomes, authority over others and being involved in decision making. Perhaps for this reason there was much less item stability for this facet of control across the two analyses that were performed. Out of a total of 13 items that loaded as general control, only 4 of these were found on both analyses. However, the reliability coefficients for the scales were both acceptable, .79 for the scores that assessed what was important for control and .92 for the scores that assessed the degree of perceived control. The high reliability in the latter case is perhaps due to the length of the scale. These items were considered to be acceptable for further multivariate analysis, but it is also felt that further item refinement is necessary.

The analysis found that perceived general control was associated with coping behaviour. The results suggested that a high degree of general control was found to be associated with a greater use of problem-focused coping, but this facet of control was not found to be related to perceived coping effectiveness. These results are discussed in more detail later in the chapter .

The Focus Of Control

An important contribution of this multifaceted approach to the measurement of control is the emphasise it places on the focus of control. Latack and Havlovic (1992) suggest that it is necessary to identify the focus of coping behaviour if the coping process is to be measured in a comprehensive way. They suggest that coping behaviours are either focused at the problem or at the individuals

emotional arousal. Furthermore they suggest this should be part of the coping behaviour assessment.

In the context of the workplace the present study has attempted to do this in a different way. It is argued that the focus of coping is an evaluative process. As has already been pointed out, control perception is an evaluation of one's coping potential and what one perceives to be the best response to a given set of circumstances. It represents what an individual thinks it is important to focus behaviour on. In this way it is possible to argue that when an individual attempts to control internal mechanisms through self control, they might be more likely to use escape or avoidance coping strategies, or if they believe it is important to have control over outcomes they might use problem-focused strategies, without equating perception and behaviour. It is important that the evaluation of coping potential is not confounded with the coping behaviour: the focus of coping is an evaluative process that should be maintained as conceptually distinct from coping behaviour. It is argued here that it is most appropriate to consider this evaluation as part of control perception in the secondary appraisal process.

Treating control perception as the process that entails an individuals focus of coping allows us to explore more carefully how an individuals evaluation of a situation is related to the behaviour that is used to deal with it. At the same time it is also a more detailed way to examine this evaluation process. Much of control measurement has been concerned with how much control an individual is perceived to have, but it pays little attention to identifying what control is important. It may be that some individuals control perceptions are dysfunctional and that these perceptions then lead them on to inappropriate coping behaviours, but unless we examine what individuals target their control toward we can not fully understand the coping process as a whole process. The findings of the regression analyses on the relationship between different facets of control and coping behaviour are discussed later in the chapter.

Two Perspectives On Control

It was initially intended to create difference scores between the two perspectives on the importance and degree of control, so as to obtain a measure of perceived control that examined the relationship between what individuals perceived to be important and to their degree of control over these factors. However, after carrying out principal component analyses on both

these scores and finding that the component structures were not identical this approach was not judged to be appropriate.

It is therefore necessary to ask whether we should expect the two questions on control perception to yield identical component structures. Secondly, we perhaps need to consider possible ways that these two questions can be linked to develop further the notion of salient control mechanisms.

The first question is a difficult one. On the one hand, there is no theoretical justification to expect the component structures to be the same. On the other hand, there is no reason to expect them to be different.

In the case of the predictability and self control scales the items were generally stable when examining the two questions. Most of the instability occurred across the task control and general control scales. Perhaps this suggests a single control facet, although neither the scree nor factor replication methods indicated a three component structure in either analysis to be the most robust. Perhaps the explanation is simply that further item refinement of the task and general control scales is needed.

The second question addresses the way that we should try to link the two questions together in a more profitable way, that is, to gain a deeper understanding of control perception. There are a number of possibilities, although it has been noted that there are significant measurement problems raised by the use of difference scores (Johns 1981). While we do not consider these arguments in detail, it is worth noting that difference scores are not recommended without considerable theoretical justification.

It seems clear that a measure of perceived control should entail those targets of control that an individual considers to be salient in the situation. One possibility that incorporates this notion is to sum the 'how much' scores only for those items that are also rated as important. This could yield a unified measure of control but only over those targets an individual considers to be important in the situation. While this proposal has some appeal it was not carried out. The present study is an exploratory one that has two ambitious goals: the control scale and an examination of the role that control plays in the coping process. Further work on how these two perspectives on control are associated with one another is an interesting topic for further research.

A New Definition Of Control

The present study was guided by the definition of secondary appraisal as given by Folkman (1984). Secondary appraisal is defined as "products of the individual's evaluations of the demands of the situation on the one hand, and his or her coping resources and opinions and abilities to implement the needed coping strategies on the other" (p842). It is therefore, a process that entails the individual's evaluation of both the demands of the situation and how and what resources are needed to control the situation. Unfortunately the attempts to measure this process have not lived up to this definition and have failed to capture the perceptions of what individuals have control over in a way that is meaningful to them (see Folkman and Lazarus 1980, Folkman et. al. 1986b).

Carver et. al. (1989) also offer a definition of secondary appraisal. They define it as the "process of bringing to mind a potential response to a threat" (p267). Note, that they refer to it as a potential response, because as we have seen from the analysis, the possibilities for control may not actually be possessed by the individual, and although these may be part of the individual's evaluation process, they may not be the targets on which the individual finally focuses their control.

On the surface, control seems to be a simple concept. After all we have some understanding of what it means to us. However, as we have discussed in Chapter 3, there are many ways to measure control. Each of the definitions given above capture important aspects that concern control perception. The emphasise that control is a cognitive process that entails an individual evaluation of a particular stressor. Second, the control perception takes into account the contextual nature of the situation that is stressful and relates this to the possibilities that the individual judges to be available to deal with it. At the same time control perception is a process distinct from coping behaviour. It is an individual's evaluation of how best to cope under a given set of circumstances. The implications of this for measurement are that we need to examine what the individual perceives is important for control as well as the degree of control that they believe they possess.

From the empirical results that have been obtained it is now possible to offer a more precise definition of situational control that incorporates the multifaceted aspect that has been strongly suggested by this study and by others (Wallston, Wallston, Smith and Dobbins 1987). *Situational control is an individual's*

evaluation of a specific stressor in a way that identifies desired outcomes by taking account of internal and external potential for action, as well as specific environmental constraints. This definition references both internal and external control mechanisms, outcomes and the process of control and in doing so it refers to a perception that gives individuals a real and meaningful sense of control. The implications for measurement are that there is a need to specify the nature of the internal control mechanisms, the external constraints and the process of control in a more detailed way. This itself can be done at two levels. At the general level of, say causal attribution (who was to blame) and self efficacy (can I control a future situation), as well as at a more specific levels of control over X, such as those described in the present study.

Of course the task of refining the control concept, identifying salient control targets and measuring control is in no way complete. The present study is an exploratory one, with the goal of moving forward our understanding of a concept that is difficult to capture, yet impossible to ignore. We have attempted to identify potential control targets that are relevant to the workplace. Four control targets have been identified and although this is an encouraging start, there is a great need for further conceptual clarification and item refinement. This is particularly true of the task control and general control scales.

Coping Behaviour

Coping behaviour was measured by sixty-three items from the Dewe and Guest (1990) coping checklist. The principal component analysis that was discussed in Chapter 5 revealed a two factor structure. This structure represents the broad distinction between problem and emotion-focused coping that has been proposed by Folkman and Lazarus (1980). The reliability of these scales was considered to be acceptable. Other studies that have used the same coping checklist (Trendberth et. al. 1996, Frederikson and Dewe (1996a), have also obtained a two component structure, but the consistency of items across the studies, is rather poor. This is somewhat worrisome.

While a number of issues regarding problems with measuring coping behaviour and the poor psychometric properties of coping scales have been identified in the literature (Aldwin and Revenson 1987, Stone, Greenberg, Kennedy-Moore and Newman 1991, Latack and Havlovic 1992, O'Driscoll and Cooper 1994), these issues have yet to be adequately resolved.

Aldwin and Revenson (1987) argue that if coping is dynamic then the factor structure of a coping scale could be expected to change over time. If this is the case, we might expect individuals to use different strategies at different phases of the coping process. Furthermore, assessment of coping that does not take the temporal nature of this process into account, may make some strategies appear irrelevant.

Stone et. al. (1991) addressed these issues by requesting individuals to describe to what extent they had used specific coping strategies and, in those cases when they had not used them, to identify whether the strategy was applicable to their situation and whether it was possible for them to use it. They found that 17% of the 66 items were not applicable at all, and that on average individuals reported 11 items to be inappropriate to their situation. They found a wide variance in the number of applicable items per person, from 1 to 52. They concluded that scales may vary in the number of items potentially applicable to certain problems and that this may cause a ceiling effect in the reliability of particular scales, for some problems.

Latack and Havlovic (1992) recommend that coping scales should examine specific situations and apply a 'middle range' (p 501.) approach to avoid the problem of having either too broad coping items or too specific coping items. The coping checklist used in the present study was chosen because it was specifically designed to examine work-related stressors (Dewe and Guest 1990). Item development also had the advantage of being based on an inductive process, what people actually said they did to cope with specific work stressors, rather than selection on a priori grounds. However, even within a particular coping domain there will always be items that may not be relevant. For example the item 'take some of your work home and work on it there', was considered to be irrelevant by one interviewee in the study. The confidential nature of the work that was carried out prohibited the use of this strategy.

A different approach is proposed by Walkey and McCormick (1985). They maintain that the factor structure should stay fairly stable if the items are robust, and it should not fluctuate according to the characteristics of the sample. This means that only broad coping strategies can be assessed. This has the advantage that strategies are applicable to a wider range of stressors and are more likely to be relevant to individuals, but it has the obvious risk of failing to represent the most salient aspects of the coping approach. On the

other hand, it may mean developing coping scales for specific stressors, where irrelevant coping items are reduced.

The transactional approach to coping has traditionally focused on broad coping strategies (Billings and Moos 1984), although Dewe and Guest (1990) have suggested that this may not adequately capture what individuals actually do. Newton and Keenan (1985) also question whether universal coping strategies exist at all or whether strategies are specific to particular problems. Again if the broad approach to coping is taken it is possible that in specific situations individuals may use coping strategies that are not listed and the listed strategies may appear irrelevant. The checklist used in the present study was designed specifically to measure coping with work stressors, but it is still likely that some items are just not generic and applicable to all work stressors. For example the item, 'never take what people say personally', seems to be relevant to a situation that involves interpersonal difficulties. The option to 'smoke more' is relevant to a smoker not otherwise.

None of this adequately explains why twenty-four of the original sixty-three items were dropped from the scale construction. Most of the items were quite general coping strategies that could have been interpreted as either emotion or problem-focused. For example to 'do nothing and try to carry on as usual', to 'reassure yourself' and to 'throw yourself into work and work harder and longer'. Perhaps they were too general, yet many of these items were also selected by a large proportion of respondents. Eleven of the twenty-four items that did not load on the two scales were used by more than 50% of respondents, so we may conclude that they were relevant to many individuals. Neither an empirical nor an analytical judgement of relevance is sufficient to explain why these items did not load.

Summary Of The Scale Evaluation

Chapter 4 discussed the four methods that were used in the principal component analysis to obtain an interpretable and reliable component structure for each of the scales that were developed. These were the Kaiser 1 rule, the standard error scree method, the graphical scree test and factor replication. As reported in the literature (Zwick And Velicer 1986) The Kaiser 1 rule consistently over specified the number of interpretable components. This was also true of the standard error scree method. The graphical scree test and factor replication were found to be the more useful guides to determining an

interpretable component structure and these were used to obtain the final scales.

In addition to using alpha coefficient the psychometric properties of the items were also analysed by inspecting inter-item correlations as recommended by Cox and Ferguson (1994). Although the scales show face validity and can be considered to be reliable measures of the appraisal and coping variables they are designed for, it remains that a number of measurement issues concerning the concepts of control and coping behaviour remain unresolved. Further work on the development of the control scales is necessary and to replicate the components that were found.

The study attempted to explore both specific stressors and actual responses and to try to link these processes. Perhaps it is also necessary to move towards a qualitative approach as Newton and Keenan (1985) have done, or to apply a more critical analysis to the stress, coping and outcome process as recommended by O'Driscoll and Cooper (1994). The alternative is to find some way to resolve the many difficulties of measurement that have been outlined.

After considering the measurement of control a separate question that involves the role of control in the stress process was examined. The study investigated the relationship of control to two dependent measures: coping behaviour and coping effectiveness. Before turning to this analysis we examine the work stressors that were reported by respondents as part of this investigation into the stress appraisal and coping process.

Work Stressors

The methodology in the main study was to ask individuals to describe a work stressor they had experienced in the last month. It is argued that this situation-oriented approach is the best way to identify the sources of stress that are most salient to individuals (O'Driscoll and Cooper 1994). A content analysis of responses identified five categories of work stressors: interpersonal difficulties, workload demands, lack of information, personal issues and technical problems.

We might think that role stressors, such as role ambiguity and role overload are the most demanding for individuals given that these stressors are evaluated more often by occupational stress researchers. However, the

present study found that while some respondents reported work overload as a source of stress, a majority of respondents reported that in the last month their most stressful situation had involved an interpersonal conflict.

This finding is corroborated by other studies that have asked individuals to recall specific situations of stress. These have also found that this form of stressor makes up a large proportion of the work stressors that are reported. For example, O'Driscoll and Cooper (1996) report that interpersonal conflict was the most common stressor reported in their study. They found that 24.3% of responses involved conflict with other people in the organisation, and another 9.5% involved conflict with individuals outside the organisation. Schwartz and Stone (1993) found that 75% of work-related incidents involved negative interactions with co-workers, supervisors and clients. Dewe (1992a) found that 47.1% of the stressors reported could be categorised as stemming from interpersonal difficulties, involving clients, colleagues and management. The present study found that interpersonal conflicts were common, making up 50% of the 134 reported incidents .

Terry (1994) has found that the nature of the work stressor is related to coping behaviour. The results of the present study and its examination of the relationship between work stressors, appraisal and coping behaviour, are discussed next.

Predicting Coping Behaviour

An examination of the factors that predict coping behaviour was an important goal of the present study. The specific interest of the study was to explore the role of situational control. In addition to this variable, the study also examined the nature of the stressor (dummy variable), dispositional affect (control variable) and two other situational appraisals: primary appraisal and situational affect, as potential determinants of coping behaviour. As reported in Chapter 6, the results of this study suggest that the situational variables each have different influences and contribute significantly to predicting the use of coping behaviour.

The Nature Of The Stressor On Coping

The nature of the stressor has been associated with coping behaviour (Schwartz and Stone 1993, Terry 1994). Several studies that have examined different stressors have found that the nature of the stressor is a significant predictor of coping behaviour. For example, Schwartz and Stone found that

work stressors in comparison with non-work stressors were associated with greater redefinition of the situation. Terry (1994) found that work problems were associated with more instrumental action than either health or interpersonal problems.

Work stressors have generally been associated with problem-focused coping (Folkman and Lazarus 1980, Folkman et. al. 1986b, Schwartz and Stone 1993, Terry 1994), and the findings of the present study tend to support this claim, given that on average problem-focused coping was used more frequently than emotion-focused coping to deal with the reported stressors. However, preliminary regression analyses found that the work stressors were not associated to coping behaviour, and so this variable was removed from the final analysis that are reported.

The analysis also showed that the work stressors did not vary by their level of perceived demand, nor were they perceived to differ in terms of their threat to self esteem. While the nature of the stressor was not found to be a predictor of coping behaviour, the analysis found that primary appraisal had a significant main effect on coping behaviour. The beta coefficients suggested that when a stressor is perceived as a threat to one's self esteem greater problem-focused coping was used. This is evidence to support the transactional view that situational appraisal is more important than the nature of the stressor as a determinant of coping behaviour (Folkman and Lazarus 1980).

Situational Appraisals On Coping

The study examined three situational appraisals: primary appraisal, control perception and situational affect. Using hierarchical moderated multiple regression analyses it was possible to examine the interaction effects between these three situational appraisals as well as their main effects on coping behaviour. The results reported in Chapter 6 show consistent evidence to suggest that situational appraisals have a significant effect on coping behaviour and this supports the transactional view of stress (Folkman and Lazarus 1980).

a. Interaction Effects

Many studies have examined the impact of situational appraisals on coping behaviour (Terry 1994, Peacock et. al. 1993, Schwartz and Stone 1993, Parkes 1986, Folkman and Lazarus 1980), but none of these have examined their interaction effects. The present study examined the interaction between control perception and primary appraisal, as well as the interaction between control perception and situational affect.

No significant interaction effects amongst the appraisal variables were found to predict the use of problem-focused coping. However, the study did find a relationship between control and emotion-focused coping, by examining the interaction effects between primary appraisal and control. In the final step of the analysis a significant interaction (at the .01 level) between the importance of self control and primary appraisal was obtained. These results are intuitive. They suggest that those individuals who reported that self control was important were more likely to use emotion-focused coping to some degree regardless of their level of primary appraisal. Whereas individuals who did not rate self control as all that important, their use of emotion-focused coping depended on the extent that they perceived the situation as threatening to their self esteem. The interaction effect suggested that individuals who perceived the situation as threatening used more emotion-focused coping that those individuals who did not appraise the situation as all that threatening to their self esteem.

To some extent asking people what factors they think are important to gain a sense of control may suggest a style of control seeking. Although, the present study does not claim to have assessed control style, it does have some intuitive appeal. For example, Miller (1981) proposed that there are personality dispositions that determine the kind of information seeking that an individual pursues, and these have been related to coping behaviour (Carver et. al. 1989). This is an area worthy of further study. It could be examined by investigating individuals appraisals of what targets of control are important across several different stressors.

b. Main Effects

The evidence for the main effects of situational predictors on coping behaviour is consistent with the literature. Control perceptions were found to be significantly related to problem-focused coping (Terry 1994, Schwartz and Stone 1993, Folkman and Lazarus 1980). Two facets of control were associated with problem-focused coping, the importance of predictability and perceived general control. When individuals attached importance to predictability and perceived greater general control they used more problem-focused coping. Again, this is an intuitive result. It is plausible that if an individual desires predictability in a situation that they will pursue problem-focused coping rather than emotion-focused coping to achieve this. It is also plausible that greater perceived control, traditionally measured as control over workplace constraints, such as decision making and responsibility over outcomes, should be associated with greater problem-focused coping.

It was also found that primary appraisal has a main effect on problem-focused coping and this is consistent with other findings (Folkman and Lazarus 1980). Primary appraisal explained two percent of the variance in problem-focused coping scores, while control perception, over and above primary appraisal, accounted for eight and six percent in the two analyses. This suggests that control perception has more influence on problem-focused coping behaviour.

The analysis showed that situational affect, in particular feelings of accomplishment, were associated with problem-focused coping. This scale was specifically designed for the present study and so comparison with other studies is not possible, but these results make intuitive sense. When individuals feel positive and confident they are more likely to use coping strategies directed toward the problem, rather than directed toward their emotions.

No main effect was found between control perception and emotion-focused coping, and these results are consistent with other studies (Forsythe and Compas 1987, Peacock et. al. 1993, Terry 1994).

Situational affect was also investigated as a predictor of coping behaviour. The results here show that situational threat was a significant predictor of emotion-focused coping. After controlling for dispositional affect it explained five percent of the variance. Some researchers have suggested that affect, not

control is the key predictor of emotion-focused coping (Peacock et. al. 1993, Compas et. al. 1991), though this may depend on how control is measured and what kind of control target is being related to the coping behaviour.

Dispositional Affect On Coping

It is worth noting that dispositional affect had a significant effect in predicting coping behaviour. While there has been much interest in the role of negative affect (O'Brien and DeLongis 1996), less attention has been paid to measuring the role of positive affect. This is particularly true in the study of work-related stress and coping. The present study measured both negative and positive affect.

Dispositional affect was measured as a control variable. The analysis showed that it had a significant main effect in predicting coping behaviour. At the first step in the analysis dispositional affect explained twenty two percent of the variance in emotion-focused coping and twenty-two percent of the variance in problem-focused coping. These results are consistent with other studies that have examined negative affect and coping behaviour (Bolger 1990, Terry 1994, O'Brien and DeLongis 1996). When all the variables were entered in the model, dispositional affect was a significant predictor of coping behaviour. Specifically, the findings suggest that individuals high in negative affect are more likely to use emotion-focused coping.

Other studies have found a relationship between negative affect and problem-focused coping (Parkes 1990, O'Brien and DeLongis 1996), but no such relationship was found in the study. Rather, it was found that positive affect was associated with problem-focused coping. This is a plausible result, if individuals feel confident about a situation it is much more likely that they will use strategies directed at the problem. These results, and those relating situational threat and emotion-focused coping, together suggest that affect is an important determinant of coping behaviour.

Summary Of The Analysis Predicting Coping Behaviour

According to the transactional model of stress (Folkman et. al. 1986a) the process of stress and coping unfolds as a dynamic interplay between the person and the situation. Although the present study did not examine the interaction between dispositional and situational variables in predicting coping behaviour, the results overall suggest that both dispositional and situational factors each play a part in predicting coping behaviour.

Problem-focused coping was associated predominantly with positive affect and perceptions of the importance of predictability, perceived general control, situational feelings of accomplishment and primary appraisal, whereas emotion-focused coping was associated with negative affect, situational threat and perceptions of the importance for self control.

The most interesting results from the study are those predicting emotion-focused coping. While they support the view that situational affect is a better determinant than control to predict this form of coping behaviour, the interaction effect between primary appraisal and self control suggests that to determine the relationship between control perception and coping behaviour it is not only necessary to distinguish between different facets of control, but to find out how an individual perceives it is important to control a situation. Examining how the different facets of control are differentially related to coping behaviour needs further investigation, particularly the relationship between emotion-focused coping and perceptions of the importance for self control.

The control perception scale that was developed in the present study is an attempt to conceptualise control as a multifaceted concept and in particular, one that takes into account the personal meaning of control for the individual. In doing so it has been suggested that control perception and its relationship to coping behaviour may indeed depend on the specific facet of control that is targeted. These results are noteworthy to the extent that they do suggest that the conceptualisation of control perception should acknowledge the different facets of control that give individuals a meaningful sense of control in the workplace. They may also reconcile the conflicting pattern of findings relating control perception to emotion-focused coping behaviour by examining what it is that individuals focus their control on.

Predicting Coping Effectiveness

A further set of analyses were carried out to test the goodness of fit hypothesis. This hypothesis proposes that coping will be effective when an individual's perception of control is aligned with their coping behaviour. Specifically, problem-focused coping is adaptive in situations where individuals perceive they have control and maladaptive in situations where they feel they have limited control. The converse is adaptive for emotion-focused coping, in situations that are perceived to hold little control and maladaptive in situations that are perceived as controllable.

Researchers have examined this hypothesis in a number of ways. Coping effectiveness has been examined in terms of long-term outcomes such as general well-being (Bowman and Stern 1995, Folkman et. al. 1986a), depression and psychological symptoms (Forsythe and Compas 1987, Conway and Terry 1992, Vitaliano et. al. 1990) and short-term outcomes such as perceived coping effectiveness (Bowman and Stern 1995, Conway and Terry 1992, Folkman et. al 1986b). The results from these studies have been inconsistent, and only Bowman and Stern (1995) have examined this hypothesis in relation to work-related stressors.

Folkman (1992) maintains that the relationship between stressors and long-term health outcomes is likely to be due to stable patterns of appraisal and coping behaviour. Therefore, it is important to understand how individuals evaluate their own coping behaviour in specific situations and identify effective coping strategies. How an individual perceives their coping behaviour will have an impact on their future behaviour and this may help to determine the extent to which stable patterns of coping appear through the interplay of situational and dispositional factors.

Consequently, the present study chose to examine perceived coping effectiveness of a specific stressor and four dependent variables were used to assess this. These are perceived coping self efficacy, satisfaction with the outcome, and the extent to which the individual found that coping strategies were useful to resolve the problem and reduce distress. Correlations between these items were all positive and significant, but they were not so high as to suggest that they were redundant aspects of perceived coping effectiveness.

The study found no support for the goodness of fit hypothesis with any of the four dependent variables. It thereby failed to support the partial findings for the hypothesis that Bowman and Stern (1995) and Conway and Terry (1992) reported for perceived coping effectiveness. In fact, perceived control and coping behaviour were not significant at all in predicting satisfaction with the outcome, as assessed by the overall F statistic, even when correlations suggested that satisfaction with the outcome was associated with perceived predictability, general control and emotion-focused coping.

Nevertheless, the analysis found that coping behaviour and control perception had main effects on perceived coping effectiveness. The results suggest that greater predictability in the situation, greater use of problem-focused coping

and less use of emotion-focused coping was associated with a greater perception that the problem was resolved and distress was reduced. We might have expected that use of emotion-focused coping would be associated with a greater ability to reduce distress. However, in the results of this study, the use of emotion-focused coping was found not to reduce distress or resolve the problem, regardless of the perception of control. In contrast, it seems that greater use of problem-focused coping was associated with problem resolution and reduced distress. However, problem-focused coping was not associated with perceived coping self efficacy, which another study has suggested (Conway and Terry 1992).

Control perception had no main effect on coping self efficacy, which is consistent with the findings of Conway and Terry (1992). The only variable associated with perceived coping self efficacy was the use of emotion-focused coping. Individuals who used few emotion-focused coping strategies also reported that they felt they had dealt with the stressor much better than those who used a lot of emotion-focused coping. Conway and Terry (1992) also found that self-denigration, a form of emotion-focused coping, was related to perceived coping self efficacy, but there measure of escapism, which more closely resembles the emotion-focused instrument used in the present study was not found to be related.

It is difficult to compare these findings with other results. Only two studies have examined perceived coping effectiveness. Bowman and Stern (1995) and Conway and Terry (1992). Both studies obtained some support for the goodness of fit hypothesis. Bowman and Stem did not examine the main effects of control perception and coping behaviour, and while Conway and Terry did, they found that problem-focused coping, and not escapism, was related to coping self efficacy, which is the opposite of our findings.

In summary, the results of this study do not support the goodness of fit hypothesis. Instead they suggest that control perception and coping behaviour are associated with perceived coping effectiveness. The results suggest that greater predictability is associated with resolving the problem and reducing distress. They also show that, greater use of problem-focused coping is associated with a more positive perception that the situation was dealt with effectively, in a way that the use of emotion-focused coping is not. Individuals who reported greater use of emotion-focused coping were less likely to report favourable perceptions.

Chapter Summary

The study developed a multifaceted control instrument that is believed to be a more robust measure of control over workplace stressors. The view that control is multifaceted is not new. For example, within the health setting environment Wallston et. al. (1987) propose a broad and encompassing view of perceived control that is consistent with the multifaceted approach which the present study supports and which suggests that different facets of control, may interact differently with health outcomes. This research has attempted in the work environment to begin such an approach, but much more work is needed to understand the relationship between control perception and work-related stress outcomes.

Two stress outcomes were examined in the study. The findings of the multiple regression analyses suggest that control perception plays an important role in predicting coping behaviour and to a lesser extent in predicting coping effectiveness. Different control targets have been found to be associated to different forms of coping behaviour and although, the study failed to find evidence to support the goodness of fit hypothesis, it seems that having predictability is associated with greater problem resolution and reduction of distress. The next chapter makes some concluding remarks about the study, including a discussion of its limitations and some suggestions for future directions of research.

Chapter 8

CONCLUSION

The present study has built on work that has examined the nature of appraisal processes in relation to work stressors (Dewe 1991b, 1992a). It has focused on the measurement of situational control in a way that has not been attempted before, and it has also examined the main and interaction effects of three situational appraisals on coping behaviour as well as the effects of control facets and coping behaviour on perceived coping effectiveness. These are the two main contributions of the study.

It is clear from the findings of the study that control perception is a complex cognitive evaluation and that it must therefore be examined in a much broader context than hitherto. Trying to understand what it is that individuals perceive to be important in gaining a sense of control in a stressful situation, as well as the degree of control that they perceive, makes it possible to examine the nature of control perception and its relationship to stress components such as coping behaviour and coping effectiveness, in a way that does justice to this complex concept.

The Measurement Of Control Perception

This thesis has reported the development of a new approach to the measurement of control perception. It is the first attempt to identify targets of control that are applicable to work-related stressors. As a first attempt, the results should be interpreted with due caution. As noted in Chapter 7 the measurement of situational control perception that was developed in the study needs further refinement. However, the four facets of control that were identified: task control, predictability, self control and general control in the workplace, are a useful starting point for item refinement. Replication of the factor structure is also needed.

In spite of these limitations, the approach that has been developed has some definite advantages when it is compared to existing measures of situational control. It takes a much broader view of how an individual evaluates control in a specific situation. In keeping with other measures of control perception, it attempts to measure the degree of control held by an individual, but it also goes beyond these measures by identifying the factors that individuals

perceive they are trying to gain control over and it is here that the four facets of control are distinguished.

Appraisal, Coping Behaviour and Coping Effectiveness

The study raises several issues concerning the relationships between appraisals, coping behaviour and coping effectiveness. The first set of analyses provides evidential support that the appraisal components in the transactional model are important predictors of coping behaviour. The addition of these components: primary appraisal, control perception and situational affect, improved the prediction of coping behaviour. The analyses found that problem-focused coping is associated with perceptions of the importance of predictability and perceived general control, as well as primary appraisal and situational feelings of accomplishment, whereas emotion-focused coping is associated with negative affect, situational perceptions of threat, and with self control in interaction with primary appraisal. While the results linking the different facets of control to coping behaviour are interesting, it is necessary to replicate them. The link between self control and emotion-focused coping is particularly interesting, this being a new finding.

The second set of analyses does not support the goodness of fit hypothesis. It does however suggest that predictability and coping behaviour play a role in perceived coping effectiveness. Exploration of the interaction between specific control targets and coping behaviour as predictors of coping effectiveness, did not reveal any relationships as was hoped, but it is interesting to note that predictability did emerge as a facet of control that was associated with perceived coping effectiveness and not the other control facets. Both analyses showed that predictability is an important control facet in the stress process and this aspect of control seems to warrant further research. The analyses also suggest that the use of emotion-focused coping to deal with work stressors was not perceived by individuals to be an effective coping strategy.

Limitations Of The Study

We have provided evidence that correlational relationships exist between the different components of appraisal and coping behaviour. However, the cross sectional methodology used means that the evidence does not support causal influences.

The nature of the study means that it is subject to certain inherent limitations. For example, the sample size is relatively small and, although respondents

were recruited from four organisations, generalisations beyond this sample, who were mainly office workers, should be made with caution. The extent to which the control facets that the study identified are relevant to workers in other fields is something that needs to be explored.

The use of self report data, while common in occupational stress research, is not without shortcomings. However, its use in this case can hardly be criticised given the focus of the study to investigate perceptions of control and its relationship to perceived coping effectiveness. On the other hand, with the benefit of hindsight, the wording of at least one key question in the Stage 1 questionnaire could have been improved. Stage 1 formed the basis of item development for Stage 2 and we asked individuals "what does having personal control mean to you in the workplace ?" This question was deliberately left somewhat vague so as not to prompt respondents and so bias their responses. However, it was found to pose difficulties, perhaps because it was a question deliberately left very open.

The main study findings also depended on self reports. Individuals were asked to recall specific encounters that had been experienced within the last month to minimise memory recall problems and to reduce falsification of reports. Perhaps, repeated measures of individuals perceptions of control would have increased the reliability of our findings.

The study did not address the dynamic nature of the stress process as proposed in the transactional model. Control perception, like all aspects of appraisal and coping in this model, is subject to change over time, and is proposed to have a reciprocal influence on other components in the model. This is only to be expected. One's control when a stressor is first perceived is likely to be different from the perception that follows a coping response. This may well be determined by whether the stressor circumstances are familiar to us. Perceptions, as to the degree of control and control targets are both, subject to change over time. An individual may judge that the possibilities for control either diminish or increase once they have tried to deal with the stressor. On the other hand, the focus of one's control perception may change from, say, control over external constraints to control over one's reaction. Clearly the concept of reappraisal as proposed by the transactional model is likely to influence control perception over time. However, the model itself says little about how and when these complex interactions take place over time.

Certainly, the clarification of this process will require repeated and in-depth evaluations of stressor appraisal, control perception and coping behaviour.

Future Directions For Research

A proper understanding of control perception and its role in stress appraisal and coping must take account of a number of distinct control facets, four of which have been identified in the study. The main result of the study is to argue for the conceptual refinement of the control concept in workplace stress. At the vary least, it should distinguish between internal and external control mechanisms. However, further conceptual clarification is needed to provide new insights into how control perception is to be measured and further empirical research is needed to evaluate these measures. Exploration of the temporal nature of control perception may also help to extend our understanding of its relationship to coping behaviour.

Another avenue of research that was mentioned in Chapter 7 is the notion of a control seeking style. This too is worth pursuing as a further piece of research. The assessment of an individual's control perception of several different work stressors could be used to look for patterns of control seeking. The relationship between these situational perceptions and general control beliefs, such as, the work locus of control (Spector 1988), information seeking style (Miller 1987) and perceptions of self efficacy (Bandura and Wood 1989), could also be explored.

This study has attempted to develop a measure of control perception and it has been argued that this measure is more encompassing than the available alternatives used in work-stress studies that adopt a transactional framework. It is therefore plausible to consider it as a more reliable measure and potentially a more useful instrument in the exploration of the relationship between control and other aspects of the stress process. This new measure was achieved by starting out with a wider conception of control that recognised its multifaceted character and that has tried to take into account the meaning that a situation has to the recipient. In this way contributing to a fuller understanding of a difficult concept and an important topic.

APPENDIX A

Occupational Stress Survey

(Stage 1)

My name is Carolyn Troup and I am a PhD student in the Department of Human Resource Management, Faculty of Business Studies at Massey University. My research project is in Occupational Stress and I am being supervised on this project by Professor Phillip Dewe, Head of the Department of Human Resource Management and Dr Lesley Frederikson a Senior Lecturer within the department.

I would like to ask you a number of questions about your experience of stress in the workplace. The questionnaire should take you about 20 - 30 minutes to fill out. There are no right or wrong answers to these questions. I am interested to know what your beliefs are and what you have experienced regarding stress in the workplace.

Your response to this questionnaire is **voluntary** and **you are not required to identify yourself** on the questionnaire, so all the information you do give will remain anonymous. The information you do give, will be kept strictly **confidential** and will only be known to myself and my supervisors. General trends will be written up and reported as part of my thesis and may be published in academic journals. This will also include short quotations of the information you may have provided, but this will be undertaken in a manner which does not single out or identify any individual member.

If you agree to participate in this study you have the right to:

Refuse to answer any particular question, and to withdraw from the study at any time. You can be assured that any information you provide will be kept strictly confidential and anonymous. While you are participating you can ask any further questions about the study. I can be contacted by leaving a message in the Department of Human Resource Management Ph: 350 4269. At the end of the study a copy of the findings of this project will be kept in the Department of Human Resource Management and made available to interested participants.

If you fill out the questions that follow, I will consider this as your consent to participate in the study. A stamped addressed envelope has been provided to return the questionnaire. Thank you.

Carolyn Troup

PhD Student, Department of Human Resource Management, Massey University.

I would like you to answer the following questions specifically regarding your work setting. I would like you to give as much detail as you can. If you need more space please write on the back of the page.

1. To what extent is having 'personal control' in your workplace important to you?

2. Why is this?

3. What does having 'personal control' mean to you in your workplace?

4. Give an example of an incident at work in which you felt you had control of the situation. Please describe this as fully as you can including how you felt about it.

4a. How stressful was this incident?

1. Not stressful at all
2. Somewhat stressful
3. Moderately stressful
4. Extremely stressful
5. Most stressful incident you have experienced at work

5. Give an example of an incident at work in which you felt you lacked control of the situation. Please describe this as fully as you can including how you felt about it.

_____

_____

5a. How stressful was this incident?

1. Not stressful at all
2. Somewhat stressful
3. Moderately stressful
4. Extremely stressful
5. Most stressful incident you have experienced at work

6. Take a few moments and think about the event or situation at work that has been the **most stressful** for you during the last month.

Describe this event.

_____

_____

7. If you could identify what you think is the single most important factor that made the situation in question six stressful, what would you say that factor was?

_____

_____

8. To what extent was having 'personal control' important for you in this situation?

1. Not important at all
2. Somewhat important
3. Moderately important
4. Extremely important

9. Why is this?

_____

10. What were the possibilities for changing the outcome of this situation? Please explain your reasons for this.

_____

_____

_____

11. What did you do to deal with this situation?

_____

_____

12. Why did you choose to deal with the situation this way?

_____

Just a few questions about yourself

1. What is your age? _____

2. What is your gender?

(please tick appropriate box)

Male

Female

3. What is your current position within the organisation?

_____

4. How long have you worked in your current position?

_____

5. Have you had other positions within the organisation? If yes, what were they and how long did you work in these positions.

_____

Thank you for participating in this study.

APPENDIX B

Occupational Stress Survey

(Stage 2)

It is recognised today that the effects of stress at work can have consequences for individuals in terms of their health and general well-being. Accordingly your organisation has agreed to participate in a study that is seeking to find out about the potential causes of stress at work and how people deal with these demands.

The study which takes the form of a postal survey is being undertaken as a student PhD Research Project in the Department of Human Resource Management at Massey University under the supervision of Professor Philip Dewe, Head of the Department of Human Resource Management and Associate Professor Doug Paton of the Department of Psychology, Massey University.

The aim of the project

The project aims to identify what people find stressful in their work environment, to examine what opportunities they have to control events in the workplace and how to deal with these demands.

Participation involves

Employees are all being invited to participate in the study. Participation is voluntary and the questionnaire will take about 30 minutes to complete.

If you agree to participate in the study

If you agree to participate in the study you have the right to refuse to answer any particular question. All the information you provide will be kept confidential and anonymous as you are not required to identify yourself on the questionnaire. This information will be kept confidential and will only be known to myself and my supervisor. Findings from the study will be written up and reported as part of my thesis and may be published in academic journals. This will be done in a manner which does not single out or identify any individual employee or organisation.

If you have any questions about the study you can call me on (06) 350 4272 or Philip Dewe on (06) 350 4268. Organisations that participate will be given a full report of the findings at the end of the study. Filling out the questionnaire is taken as your consent to participate in the study. Please return the questionnaire in the stamped addressed envelope provided.

THANK YOU

Carolyn Troup

PhD Student, Department of Human Resource Management, Massey University.

Filling out the questionnaire implies your consent to participate in this study.

Office use only (1-3)

Section 1.

This section is intended to find out about the kinds of situations that cause people to feel stressed in the work place. By "stressed" we mean a situation which was difficult or troubled you either because it placed demands on you or put you under pressure, or it may have made you feel bad or because it took some effort to deal with.

1. Take a few moments and think about the event or situation at work that has been the most stressful for you during the last month. This situation could be one that you are currently experiencing at work or one that has already happened. (4-5)

   In the space below describe that event, what happened and who was involved. We do not want you to identify any particular person or persons. Instead refer to other persons involved in this situation as 'co-worker', 'customer' or 'colleagues' etc. where necessary.

_____

_____

2. How stressful was this situation for you?

Not at all Stressful									Extremely Stressful	(6)
1	2	3	4	5	6	7	8	9	10	

3. Thinking about the situation you have just written about, indicate using the scale below whether you believe it involved the following items

	Not at all	A little	A fair bit	A lot	A great deal	
1.You appearing to be an unsupportive person.	1	2	3	4	5	(7)
2.You appearing difficult to get along with.	1	2	3	4	5	(8)
3.You appearing in the wrong.	1	2	3	4	5	(9)
4.You appearing incompetent.	1	2	3	4	5	(10)
5.You feeling you would lose the respect of someone important to you.	1	2	3	4	5	(11)
6.You feeling you would not achieve an important goal.	1	2	3	4	5	(12)
7.You feeling embarrassed.	1	2	3	4	5	(13)
8.You feeling threatened.	1	2	3	4	5	(14)

Section 2.

1. Continue thinking about the situation you have just described above. The list below contains factors which allow employees to have control in the workplace. I am interested in knowing two things about each of these factors:

   a. How important each factor was in giving you control over the situation?

   b. How much control you actually had over each factor when dealing with the situation?

	(a) HOW IMPORTANT WAS THE FACTOR IN GIVING YOU CONTROL OVER THE SITUATION?						(b) HOW MUCH CONTROL DID YOU ACTUALLY HAVE OVER THE FACTOR WHEN DEALING WITH THE SITUATION?					
	Not at all	A little	A fair bit	A lot	A great deal		None at all	A little	A fair bit	A lot	A great deal	
1.Being informed about things.	1	2	3	4	5	(15)	1	2	3	4	5	(29)
2.Being clear about what has to be carried out.	1	2	3	4	5	(16)	1	2	3	4	5	(30)
3.Anticipating what might happen.	1	2	3	4	5	(17)	1	2	3	4	5	(31)
4.Feeling certain about the outcome.	1	2	3	4	5	(18)	1	2	3	4	5	(32)
5.Having all the necessary resources.	1	2	3	4	5	(19)	1	2	3	4	5	(33)
6.Being able to obtain information from colleagues.	1	2	3	4	5	(20)	1	2	3	4	5	(34)
7.Planning your own time.	1	2	3	4	5	(21)	1	2	3	4	5	(35)
8.Being able to reduce any uncertainties.	1	2	3	4	5	(22)	1	2	3	4	5	(36)
9.Being able to respond as yoou thought appropriate.	1	2	3	4	5	(23)	1	2	3	4	5	(37)
10.Organizing your own workload.	1	2	3	4	5	(24)	1	2	3	4	5	(38)
11.Anticipating potential problems.	1	2	3	4	5	(25)	1	2	3	4	5	(39)
12.Setting your own priorities.	1	2	3	4	5	(26)	1	2	3	4	5	(40)
13.Meeting a deadline.	1	2	3	4	5	(27)	1	2	3	4	5	(41)
14.Knowing how others are involved.	1	2	3	4	5	(28)	1	2	3	4	5	(42)
15.Choosing the pace to work at.	1	2	3	4	5	(43)	1	2	3	4	5	(62)
16.Deciding how to get the job done.	1	2	3	4	5	(44)	1	2	3	4	5	(63)
17.Having authority over co-workers.	1	2	3	4	5	(45)	1	2	3	4	5	(64)
18.Having the support of others.	1	2	3	4	5	(46)	1	2	3	4	5	(65)
19.Being able to work independently.	1	2	3	4	5	(47)	1	2	3	4	5	(66)

	HOW IMPORTANT WAS THE FACTOR IN GIVING YOU CONTROL OVER THE SITUATION?						HOW MUCH CONTROL DID YOU ACTUALLY HAVE OVER THE FACTOR WHEN DEALING WITH THE SITUATION?					
	Not at all	A little	A fair bit	A lot	A great deal		None at all	A little	A fair bit	A lot	A great deal	
20.Having responsibility for the outcome.	1	2	3	4	5	(48) 1	2	3	4	5		(67)
21.Being involved in decision making.	1	2	3	4	5	(49) 1	2	3	4	5		(68)
22.Doing things in 'your own way'.	1	2	3	4	5	(50) 1	2	3	4	5		(69)
23.Completing the job to your satisfaction.	1	2	3	4	5	(51) 1	2	3	4	5		(70)
24.Choosing when to complete a task.	1	2	3	4	5	(52) 1	2	3	4	5		(71)
25.Doing a professional job.	1	2	3	4	5	(53) 1	2	3	4	5		(72)
26.Not allowing it to make you feel bad.	1	2	3	4	5	(54) 1	2	3	4	5		(73)
27.By remaining relaxed.	1	2	3	4	5	(55) 1	2	3	4	5		(74)
28.Choosing the order to carry out tasks.	1	2	3	4	5	(56) 1	2	3	4	5		(75)
29.Choosing when to start a task.	1	2	3	4	5	(57) 1	2	3	4	5		(76)
30.By maintaining self control.	1	2	3	4	5	(58) 1	2	3	4	5		(77)
31.Preparing for the worse possible outcome.	1	2	3	4	5	(59) 1	2	3	4	5		(78)
32.Thinking about alternative solutions.	1	2	3	4	5	(60) 1	2	3	4	5		(79)
33.Attempting to avoid conflict.	1	2	3	4	5	(61) 1	2	3	4	5		(80)
34.Re-examining the situation.	1	2	3	4	5	(81) 1	2	3	4	5		(83)
35.Carrying on as best as you could.	1	2	3	4	5	(82) 1	2	3	4	5		(84)

2. Were there other factors that you think were more applicable to your controlling the situation?

What was this factor(s)?

_____

_____ (85-86)

3. Thinking about the same situation you have just described. Select from the list below the one statement that best describes your perception of how controllable that situation was. (87)

Would you say the situation was one;

a. that you could change or do something about. 1
b. in which you needed to know more before you could act. 2
c. in which you had to hold yourself back from doing what you wanted to do. 3
d. where the organizational bureaucracy made it difficult to deal with. 4
e. where if you dealt with it in the way you wanted to it would have made things difficult for you. 5
f. that you had to accept. 6

Section 3.

This section contains a list of adjectives that describe how we might be feeling. Thinking about the situation that you have been describing use the scale below to indicate the extent to which that situation or event made you feel.

	Not at all 1	A little bit 2	A fair bit 3	A lot 4	A great deal 5
1.Happy	1	2	3	4	5 (88)
2.Sad	1	2	3	4	5 (89)
3.Upset	1	2	3	4	5 (90)
4.Angry	1	2	3	4	5 (91)
5.Joyful	1	2	3	4	5 (92)
6.Satisfied	1	2	3	4	5 (93)
7.Pleased	1	2	3	4	5 (94)
8.Fulfilled	1	2	3	4	5 (95)
9.Resentful	1	2	3	4	5 (96)
10.Credible	1	2	3	4	5 (97)
11.Guilty	1	2	3	4	5 (98)
12.Eager	1	2	3	4	5 (99)
13.Frustrated	1	2	3	4	5 (100)
14.Relieved	1	2	3	4	5 (101)
15.Relaxed	1	2	3	4	5 (102)
16.Fearful	1	2	3	4	5 (103)
17.Anxious	1	2	3	4	5 (104)
18.Competent	1	2	3	4	5 (105)
19.Proud	1	2	3	4	5 (106)
20.Panicky	1	2	3	4	5 (107)
21.Betrayed	1	2	3	4	5 (108)
22.Challenged	1	2	3	4	5 (109)
23.Confused	1	2	3	4	5 (110)
24.Disappointed	1	2	3	4	5 (111)
25.Energized	1	2	3	4	5 (112)
26.Secure	1	2	3	4	5 (113)
27.Resigned	1	2	3	4	5 (114)
28. Tense	1	2	3	4	5 (115)
29. Hopeful	1	2	3	4	5 (116)
30. Pressured	1	2	3	4	5 (117)
31. Confident	1	2	3	4	5 (118)
32. Valued	1	2	3	4	5 (119)
33. Worried	1	2	3	4	5 (120)
34. Focused	1	2	3	4	5 (121)
35. Alert	1	2	3	4	5 (122)
36. Empowered	1	2	3	4	5 (123)

Section 4

In this section we are interested to know WHAT YOU DID TO DEAL WITH THE STRESSFUL SITUATION you have been describing. Below is a list of strategies that you might have used to deal with the situation. Circle the category which describes the extent to which you used each of the strategies to deal with your situation.

	Did not use	Used a little	Used a fair bit	Used a lot	Used a great deal	
	1	2	3	4	5	
1.Try to see the humorous aspect of the situation	1	2	3	4	5	(124)
2.Talk about the situation with someone else at work.	1	2	3	4	5	(125)
3.Try to find out more about the situation-seek out additional information.	1	2	3	4	5	(126)
4.Try not to worry or think about it.	1	2	3	4	5	(127)
5.Try to reassure yourself that everything is going to work out all right.	1	2	3	4	5	(128)
6.Take some immediate action on the basis of your present understanding of the situation.	1	2	3	4	5	(129)
7.Analyze all the negative consequences so that you are prepared for the worst.	1	2	3	4	5	(130)
8. Become more involved in non- work activities-hobbies, leisure.	1	2	3	4	5	(131)
9.Try to reduce the tension by taking physical activity.	1	2	3	4	5	(132)
10.Get support from the fact that not all problems can be solved even at a national level.	1	2	3	4	5	(133)
11.Think of the good things in the future.	1	2	3	4	5	(134)
12.Just let the feeling wear off.	1	2	3	4	5	(135)
13.Consider a range of plans for handling the situation - set priorities.	1	2	3	4	5	(136)
14.Throw yourself into work and work harder and longer.	1	2	3	4	5	(137)
15.Make a concerted effort to distract yourself with some fun or pleasurable activity.	1	2	3	4	5	(138)
16.Take a break and come back to the problem later.	1	2	3	4	5	(138)
17.Ignore for a time the apparent problem until you feel you are ready to handle it.	1	2	3	4	5	(140)

	Did not use	Used a little	Used a fair bit	Used a lot	Used a great deal	
	1	2	3	4	5	
18.Move on to other work activities that you know you can get satisfaction from.	1	2	3	4	5	(141)
19.Take some of your work home and work on it there.	1	2	3	4	5	(142)
20.Get rid of the tension by expressing some irritability and frustration to yourself - swearing, slamming things down, crumpling up pieces of paper.	1	2	3	4	5	(143)
21.Get mad at yourself and tell yourself that you could have avoided the situation.	1	2	3	4	5	(144)
22.Talk things over with your partner when you get home at night.	1	2	3	4	5	(145)
23.Try to think objectively about the situation and keep your feelings under control.	1	2	3	4	5	(146)
24.Leave the office and go home.	1	2	3	4	5	(147)
25.Do nothing and try to carry on as usual.	1	2	3	4	5	(148)
26.Face the situation knowing that your family and partner give you help and a sense of proportion to the problem.	1	2	3	4	5	(149)
27.Express your irritation to other work colleagues just to be able to let off steam.	1	2	3	4	5	(150)
28.Try to get advice and suggestions from someone else at work.	1	2	3	4	5	(151)
29.Leave the problem and try and solve it later by talking it through at home.	1	2	3	4	5	(152)
30.Express your feelings and frustrations to others so that you can think rationally about the problem.	1	2	3	4	5	(153)
31.Decide to go out with the family or friends and enjoy yourself forgetting about work problems for a time.	1	2	3	4	5	(154)
32.Stand back and try and rationalise the situation.	1	2	3	4	5	(155)
33.Just avoid the subject of contention.	1	2	3	4	5	(156)
34.Forget work when finished for the day.	1	2	3	4	5	(157)
35.Draw on support from your boss and discuss the problem.	1	2	3	4	5	(158)

	Did not use	Used a little	Used a fair bit	Used a lot	Used a great deal	
	1	2	3	4	5	
36.Simply drop what you are doing and take up something totally unrelated.	1	2	3	4	5	(159)
37.Just become more involved in family life, helping with partner and children.	1	2	3	4	5	(160)
38.Don't let the problem go until you have had a chance to deal with it.	1	2	3	4	5	(161)
39.Let your work output slip until you have had a chance to deal with the problem.	1	2	3	4	5	(162)
40.Consciously force yourself to slow down and take a longer view of things.	1	2	3	4	5	(163)
41.Tackle routine work so that you can cool down and get composure back.	1	2	3	4	5	(164)
42.Never take what people say personally.	1	2	3	4	5	(165)
43.Cover up problems rather than deal with them.	1	2	3	4	5	(166)
44.Follow the proper channels of procedure to "cover yourself".	1	2	3	4	5	(167)
45.Make sure people are aware you are doing your best.	1	2	3	4	5	(168)
46.Let people know exactly where you stand.	1	2	3	4	5	(169)
47.Try and get as much rest as possible so you will be fresh and alert at work.	1	2	3	4	5	(170)
48.Reconsider just how involved you are at work.	1	2	3	4	5	(171)
49.Delegate some of the work.	1	2	3	4	5	(172)
50.Try and introduce some variety into your job.	1	2	3	4	5	(173)
51.Whenever possible give your opinion about how things are done and the way things are going at work.	1	2	3	4	5	(174)
52.Think of the next batch of work and hope it will be better than the batch you are presently working on.	1	2	3	4	5	(175)
53.Lose your temper for a moment.	1	2	3	4	5	(176)
54.Smoke more.	1	2	3	4	5	(177)

	Did not use	Used a little	Used a fair bit	Used a lot	Used a great deal	
	1	2	3	4	5	
55.Take a day off.	1	2	3	4	5	(178)
56.Try to prevent others from finding out about the pressures you are under.	1	2	3	4	5	(179)
57.Drink more tea or coffee.	1	2	3	4	5	(180)
58. Spend some time daydreaming.	1	2	3	4	5	(181)
59.Take your feelings out on your staff or whoever happens to be around.	1	2	3	4	5	(182)
60.Go and have a few beers or other drinks.	1	2	3	4	5	(183)
61.Eat more.	1	2	3	4	5	(184)
62.Just give up and accept what's happening.	1	2	3	4	5	(185)
63.Leave your desk and go to another part of the office for awhile	1	2	3	4	5	(186)

2. To what extent were the strategies used in this situation effective in resolving the problem?

a.	Not at all effective	1	
b.	A little effective	2	
c.	Moderately effective	3	(187)
d.	Quite a bit effective	4	
e.	Extremely effective	5	

3. To what extent were the strategies used in this situation effective to reduce any distress?

a.	Not at all effective	1	
b.	A little effective	2	
c.	Moderately effective	3	(188)
d.	Quite a bit effective	4	
e.	Extremely effective	5	

4. Was the outcome resolved to your satisfaction?

a.	It is unresolved and has got worse	1	
b.	It is unresolved but it has not changed	2	
c.	It is unresolved and has improved somewhat	3	(189)
d.	It was resolved, but not to my satisfaction	4	
e.	It was resolved to my satisfaction	5	

5. How well do you think you were able to deal with this situation?

Not Very Well — Extremely Well (190)

1 2 3 4 5 6 7 8 9 10

Section 5.

This section consists of a number of words that describe different feelings and emotions. We would like to know to what extent you generally feel this way, that is how you feel on average. Use the following scale to record your answers.

		Not at all	A little	Moderately	Quite a bit	Extremely	
		1	2	3	4	5	
1.	Interested	1	2	3	4	5	(191)
2.	Distressed	1	2	3	4	5	(192)
3.	Excited	1	2	3	4	5	(193))
4.	Upset	1	2	3	4	5	(194)
5.	Strong	1	2	3	4	5	(195)
6.	Guilty	1	2	3	4	5	(196)
7.	Scared	1	2	3	4	5	(197)
8.	Hostile	1	2	3	4	5	(198)
9.	Enthusiastic	1	2	3	4	5	(199)
10.	Proud	1	2	3	4	5	(200)
11.	Irritable	1	2	3	4	5	(201)
12.	Alert	1	2	3	4	5	(202)
13.	Ashamed	1	2	3	4	5	(203)
14.	Inspired	1	2	3	4	5	(204)
15.	Nervous	1	2	3	4	5	(205)
16.	Determined	1	2	3	4	5	(206)
17.	Attentive	1	2	3	4	5	(207)
18.	Jittery	1	2	3	4	5	(208)
19.	Active	1	2	3	4	5	(209)
20.	Afraid	1	2	3	4	5	(210)

Section 6

In this final section we would like to know some information about you and your work experiences in the organization.

1. What is your age? _____ (211-212)

2. What is your gender? Male____ Female____ (213)

3. What is your current position?
_____ (214-215)

4. What type of industry do you work in?
_____ (216-217)

5. How long have you worked in your current position?
_____ (218-220)

6. How long have you work in the organization?
_____ (221-223)

7. Do you work? Full-time____ Part-time___ (224))

(225)

Thank-you for participating in this project.
Carolyn Troup.

REFERENCES

Aldwin, C. M. (1994). *Stress, Coping and Development.* New York: The Guildford Press.

Aldwin, C. M., & Revenson, T.A. (1987). Does coping help? a reexamination of the relation between coping and mental health. *Journal of Personality and Social Psychology*, Vol. 53, No. 2, 337-348.

American Psychological Society (1993). *APS Observer (Special Issue) HCI Report 1, Changing Nature of Work.*

Amirkhan, J.H. (1990). Applying attribution theory to the study of stress and coping. In S. Graham & V. Folkes (eds) *Attribution Theory: Applications to Achievement, Mental Health, and Interpersonal Conflict*, Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Andrew, G., & Tennant, C. (1978). Being upset and becoming ill: an appraisal of the relation between life events and physical illness. *Medical Journal of Australia.* 1, 324-327.

Averill, J.R. (1973). Personal control over aversive stimuli and its relationship to stress. *Psychological Bulletin.* Vol 80, No 4, 286-303.

Barling, J., Wade, B., & Fullagar, C. (1990). Predicting employee commitment to company and union. *Journal of Occupational Psychology.* 63, 49-63.

Barone, D.F. (1991). Developing a transactional psychology of work stress. In P.L. Perrewé, (ed.) Handbook on Job Stress [Special Issue]. *Journal of Social Behaviour and Personality,* Vol.6, No. 7, 31-38.

Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology.* Vol. 51, No. 6, 1173-1182.

Bartlett, M.S. (1950). Tests of significance in factor analysis. *British Journal of Psychology*, 3, 77-85.

Bateman, p. (1996). Battling the stress monster. *Safeguard*, July-August, 17-22.

Bazerman, M.H. (1982). Impact of Personal Control on Performance: Is added control always beneficial? *Journal of Applied Psycholgy.* Vol. 67, No. 4, 472-479.

Beehr, T.A. (1994). *Psychological Stress in the Workplace.* London: Routledge.

Beehr, T.A., & Franz, T.M. (1987). The current debate about the meaning of job stress. In J.M.Ivancevich & D.C. Ganster (eds). *Job Stress: From Theory to Suggestion*, 417-431. New York, Haworth Press Inc.

Billings, A.G., & Moos, R.H. (1984). Coping, stress and social support among adults with unipolar depression. *Journal of Personality and Social Psychology*, Vol. 46, 877-891.

Bolger, N. (1990). Coping as a personality process: A prospective study. *Journal of Personality and Social Psychology.* Vol. 59, No. 3, 525-537.

Boman, B., & Rahe, R.H. (1988). Stress and heart disease. In S.Fisher & J.Reason (eds), *Handbook of Life Stress, Cognition and Health*. Chichester: Wiley.

Bowman, G.D., & Stem, M. (1995). Adjustment to occupational stress: the relationship of perceived control to effectiveness of coping strategies. *Journal of Counselling Psychology,* Vol, 42, No. 3, 294-303.

Brehm, J.W. (1966). *A Theory of Psychological Reactance.* New York: Academic Press.

Brief, A.P., & Atieh, J.M. (1987). Studying job stress: are we making mountains out of molehills? *Journal of Occupational Behavior,* Vol, 18, 115-126.

Brief, A.P, Burke, M., George, J.M., Robinson, B., & Webster, J. (1988). Should negative affectivity remain an unmeasured variable in the study of job stress? *Journal of Applied Psychology,* 73, 193-198.

Brief, A.P, & J. M., George. (1991). Psychological stress and the workplace: a brief comment on Lazarus' outlook. In P.L. Perrewé, (ed.) Handbook on Job Stress [Special Issue]. *Journal of Social Behaviour and Personality,* Vol.6, No. 7, 15-20.

Briggs, S.R., & Cheek, J.M. (1986). The role of factor analysis in the development and evaluation of personality scales. *Journal of Personality*, 54: 1, 106-148.

Canon, W.B. (1929). *Bodily Changes in Pain, Hunger, Fear and Rage: An Account of Recent Researches in the Function of Emotional Excitement.* New York: Appleton.

Carayon, P. (1993). A longitudinal test of Karasek's job strain model among office workers. *Work and Stress.* Vol. 7, No. 4, 229-314.

Cartwright, S., & Cooper, C.L. (1996) Coping in occupational settings. In M.Zeudner & N.S. Endler (eds.). *Handbook of Coping.Theory, Research, Applications.* New York: John Wiley & Sons.

Cartwright, S., & Cooper, C.L. (1997). *Managing Workplace Stress.* Thousands Oaks: Sage Publications.

Carver, C.S., & Scheier, M.F. (1994). Situational coping and coping dispositions in a stressful transaction. *Journal of Personality and Social Psychology.* Vol. 66. No. 1, 184-195.

Carver, C.S., Scheier, M.F., & Weintraub, J.K. (1989). Assessing coping strategies: a theoretical based approach. *Journal of Personality and Social Psychology*. Vol. 56. No. 2, 267-283.

Cattell, R.B. (1978). *The Scientific Use of Factor Analysis in Behavior and Life Sciences*. New York: Plennum.

Cattell, R.B., & Vogelman, S. (1977). A comprehensive trial of the scree and KG criteria for determining the number of factors. *The Journal of Multivariate Behavioral Research,* 12,289-325.

Child, D. (1970). *The Essentials of Factor Analysis.* London: Holt, Rinehart and Winston.

Chwalisz, K ., Altmaier, E., & Russell, D.W. (1992). Causal attributions, self-efficacy cognitions, and coping with stress. *Journal of Social and Clinical Psychology,* Vol.11,No.4, 377-400.

Cinciripini, P.M. (1988). Cognitive stress and cardiovascular reactivity: relationships to hypertension. In J.J.Hurrell, L.R.Murphy, S.L.Sauter and C.L.Cooper (eds), *Occupational Stress. Issues and Development in Research.* New York: Taylor and Francis.

Cohen, J., & Cohen, P. (1983). *Applied Multiple Regression/Correlation and Analysis for the Behavioral Sciences.* New Jersey: Lawrence Erlbaum Associates.

Cohen, S., Kessler, R.C., Underwood-Gordon, L. (1995). Strategies for measuring stress in studies of psychiatric and physical disorders. In S. Cohen, R.C. Kessler., & L. Underwood-Gordon (eds). *Measuring Stress: A Guide for Health and Social Scientists.* New York: Oxford University Press.

Cohen, S., Schwartz, J.E., Bromet, E.J., & Parkinson, D.K. (1991). Mental health, stress and poor health behaviors in two community samples. *Preventitive Medicine,* 20, 306-315.

Cohen, S., & Williamson, G.M. (1991) Stress and infectious disease in humans. *Psychological Bulletin,* Vol 109, No.1. 5-24.

Cohen, S., & Wills, S.L. (1985). Issues in the study and application of social support. In S.L. Cohen & S.L. Syme (eds). *Social Support and Health.* New York: Academic Press.

Compas, B.E., Banez, G.A., Malcarne., & Worsham, N. (1991). Perceived control and coping with stress: a developmental perspective. *Journal of Social Issues*, Vol. 47, No. 4, 23-34.

Compas, B.E., & Orosan, P.G. (1993). Cognitive apprasials and coping with stress. In B.C.Long & S.E. Kahn (Eds.) *Women, Work, and Coping. A Multidisciplinary Approach to Workplace Stress.* Montreal and Kingston: McGill-Queen's University Press.

Conway, V.J., & Terry, D.J. (1992). Appraised controllability as a moderator of the effectiveness of different coping strategies: a test of the goodness of fit hypothesis. *Australian Journal of Psychology,* Vol. 44, No. 1, 1-7.

Cooper, C.L., & Marshall, J. (1976). Occupational sources of stress: a review of the literature relating to coronary heart disease and mental ill health. *Journal of Occupational Psychology*, 49, 11-28.

Cox, T. (1985). The nature and measurement of stress. *Ergonomics*, 28, 1155-63.

Cox, T. (1978). *Stress.* London: MacMillan.

Cox, T. (1990). The recognition and measurement of stress: conceptual and methodological issues. In N. Corlett & J. Wilson (eds). *Evaluation of Human Work.* 628-647. London: Taylor and Francis.

Cox, T., & Ferguson, E. (1991). Individual differences, stress and coping. In C.L. Cooper & R. Payne. (eds.) *Personality and Stress: Individual Differences in the Stress Process.* 7-30. Chichester: Wiley.

Cox, T., & Ferguson, E. (1994). Measurement of the subjective work environment. *Work and Stress.* Vol. 8, No. 2, 98-109.

Cox, T., & Griffiths, A. (1994). The nature and measurement of work and stress: theory and practice. In J.R. Wilson & E.N.Corlett (eds). *Evaluation of Human Work. A Practical Ergonomics Methodology (2nd Ed).* New York: Taylor and Francis.

Cox, T., & McKay, C.J. (1981). A Transactional approach to stress. In E.N. Corlett & J.R. Richardson (eds). *Stress, Work Design and Productivity, 91-115.* Chichester: Wiley.

Cox, T., Thirlaway, M., Gotts, G., & Cox, S. (1983). The nature and assessment of general well-being. *Journal of Psychosomatic Research*, Vol 27, No 5, 353-359.

Daniels, K. (1996). Why aren't managers concerned about occupational stress? *Work and Stress,* Vol 10. No. 4, 352-366.

Daniels, K., & Guppy, A. (1992). Control, information-seeking preferences, occupational stressors and psychological well-being. *Work and Stress*, Vol 6, No 4, 347-353.

Daniels, K., & Guppy, A. (1994). Occupational stress, social support, job control, and psychological well-being. *Human Relations,* Vol 47, No. 12, 1523-1544.

De Charms, R. (1968). *Personal Causation.* New York: Academic Press.

De Vaus, D.A. (1991). *Surveys in Social Research (3rd Ed).* London: Allen and Unwin.

Dewe, P.J. (1991a). Primary appraisal, secondary appraisal and coping: their role in stressful work encounters. *Journal of Occupational Psychology,* Vol 64, 331-351.

Dewe, P. J. (1991b). Measuring work stressors: the role of frequency, duration, and demand. *Work and Stress.* Vol. 5, No. 2, 77-91.

Dewe, P. J. (1992a). Applying the concept of appraisal to work stressors: some exploratory analysis. *Human Relations.* Vol 45, No 2, 143-163.

Dewe, P. J. (1992b). The appraisal process: exploring the role of meaning, importance, control and coping in work stress. *Anxiety, Stress, and Coping.* Vol. 5, 95-109.

Dewe, P. J. (1993). Measuring primary appraisal: scale construction and directions for future research. *Journal of Social Behavior and Personality,* Vol. 8, No. 4, 673-685.

Dewe, P.J., & Cox, T., & Ferguson, E. (1993). Individual strategies for coping with stress at work: a review. *Work and Stress.* Vol. 7, No. 1, 5-15.

Dewe, P.J., & Guest, D.E. (1990). Methods of coping with stress at work: a conceptual analysis and empirical study of measurement issues. *Journal of Organizational Behavior.* Vol 11, 135-150.

Dunlap, W., Kemery, E. (1987). Failure to detect moderating effects: is multicollinearity the problem? *Psychological Bulletin*, 102, 418-420.

Dwyer, D.C., & Ganster, D.C. (1991) The effects of job demands and control on employee attendance and satisfaction. *Journal of Organizational Behavior.* Vol 12, 595-608.

Dziuban, C.D., & Shirkey, E.C. (1974). When is a correlation matrix appropriate for factor analysis? *Psychological Bulletin*, 81, 358-361.

Edwards, J.R. (1988). The determinants and consequences of coping with stress. In C.L. Cooper & R. Payne (eds). *Causes, Coping and Consequences of Stress at Work.* New York: John Wiley and Sons Ltd.

Edwards, J.R. (1991). Person-job fit: a conceptual integration, literature review, and methodological critique. In C.L. Cooper & I.T. Robertson (eds). *International Review and Organizational Psychology.* Vol 6. New York: John Wiley and Sons Ltd.

Edwards, J.R., & Cooper, C.L.. (1990). The person-environment fit approach to stress: recurring problems and some suggested solutions. *Journal of Organizational Behavior,* Vol 11, 293-307.

Elliott, T.R., Chartrand, M., & Harkins, S.W. (1994). Negative affectivity, emotional distress, and the cognitive appraisal of occupational stress. *Journal of Vocational Behavior*, 45, 185-201.

Evans G., Johansson, G., & Carrere, S. (1994) Psychosocial factors and the physical environment: inter-relations in the workplace. In C.L. Cooper & I.T. Robertson (eds) *International Review of Industrial and Organisational Psychology,* Vol 9. New York: John Wiley and Sons.

Eulberg, J.R., Weekly, J.A., & Bhagat, R.S. (1988). Models of stress in organisational research: a metatheoretical perspective. *Human Relations.* Vol 41, No 4, 331-350.

Farrell, D., & Stamm, C.L. (1988). Meta-analysis of the correlates of employee absence. *Human Relations.* 41, 211-227.

Ferguson, E., & Cox, T. (1993). Exploratory factor analysis: a user's guide. *International Journal of Selection and Assessment*, 1, 84-94.

Finney, J.W., Mitchell, R.E., Cronkite, R.C., & Moos, R.H. (1984). Methodological issues in estimating main and interactive effects. Examples from coping, social support and stress field. *Journal of Health and Social Behavior*, Vol 25 (March), 85-98.

Fisher, S. (1986). *Stress and Strategy.* London: Erlbaum.

Fisher, S. (1989). Stress, control, worry prescriptions and the implications for health at work: a psychobiological model. In S.L. Sauter, J.J. Hurrell & C.L. Cooper (eds). *Job Control and Worker Health.* New York: John Wiley and Sons Ltd.

Fleming, I., & Baum, A. (1987). Stress: psychobiological assessment. In J.M. Ivancevich & D.C. Ganster (eds.). *Job Stress: From Theory to Suggestion.* New York: The Hawthorn Press.

Fletcher, B.C., & Jones, F. (1993). A refutation of Karasek's demand-discretion model of occupational stress with a range of dependent measures. *Journal of Organizational Behavior.* Vol 14, 319-330.

Florian, V., Mikulincer, M., & Taubman, O. (1995). Does hardiness contribute to mental health during a stressful real-life situation?: the roles of appraisal and coping. *Journal of Personality and Social Psychology,* Vol 6, No. 4 , 687-695.

Folkman, S. (1984). Personal control and stress and coping processes: a theoretical analysis. *Journal of Personality and Social Psychology.* Vol. 46. No. 4, 839-852.

Folkman, S. (1992). Making the case for coping. In B.N. Carpenter (Ed) *Personal Coping: Theory, Research, and Application.* Westport, Conn: Praeger.

Folkman, S., & Lazarus, R.S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior. Vol. 21, 219-239.*

Folkman, S., & Lazarus, R.S. (1985). If it changes it must be a process: study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology.* Vol. 48. No. 1, 150-170.

Folkman, S., & Lazarus, R.S. (1988). Coping as a mediator of emotion. *Journal of Personality and Social Psychology,* Vol 54, No. 3, 466-475.

Folkman, S., Lazarus, R.S., Gruen, R.J., & Delongis, A. (1986a). Appraisal, coping health status and psychological symptoms. *Journal of Personality and Social Psychology.* Vol. 50. No. 3, 571-579.

Folkman, S., Lazarus, R.S., Dunkel-Schetter, C., Delongis, A., & Gruen, R.J. (1986 b). Dynamics of a stressful encounter : cognitive appraisal, coping and encounter outcomes. *Journal of Personality and Social Psychology.* Vol. 50. No. 5, 992-1003.

Forsythe, C.J., & Compas, B.E. (1987). Appraisals of stressful events and coping: testing the goodness of fit hypothesis. *Cognitive Therapy and Research*, Vol. 11, No. 4, 473-485.

Frankenhauser, M. (1981). Coping with job stress - a psychobiological approach. In B. Gardell, G. Johansson (eds). *Working Life: A Social Science Contribution to Work Reform. 213-234.* New York: John Wiley and Sons.

Frederikson, L., & Dewe, P. J. (1996a). The cognitive appraisal of stress: the influence of organizational climate, perceptions of control, and feelings associated with stressful work events. *Research and Practice in Human Resource Management,* Vol 4, Issue 1: 1-24.

Frederikson, L., & Dewe, P.J. (1996b). Longitudinal study of appraisal and coping using repeated measures of stressor, importance, frustration and coping response. *Stress Medicine ,* Vol. 12, 81-91.

French, J.R., & Caplan, R.D. (1972). Organizational stress and individual strain. In A.J. Morrow (ed). *The Failure of Success.* New York: AMACOM.

French, J.R., & Caplan, R.D., & Van Harrison, R. (1982). *The Mechanisms of Job Stress and Strain.* New York: Wiley.

Frese, M. (1985) Stress at work and psychosomatic complaints: a causal interpretation. *Journal of Applied Psychology,* 70, 314-328.

Frese, M. (1989). Theoretical models of control and health. In S.L. Sauter, J.J. Hurrell & C.L. Cooper (eds). *Job Control & Worker Health.* NY: Wiley & Sons.

Fried, Y., Rolland, K.M., & Ferris, G.R. (1984). The physiological measurement of work stress: a critque. *Personnel Psychology*, 37 (4), 583-615.

Frone, M.R. (1990). Intolerance of ambiguity as a moderator of the occupational role stress-strain relationship: a meta-analysis. *Journal of Organizational Behavior,* Vol. 11, 309-320. 309-320.

Frone, M.R., Russell, M. & Cooper, M.L. (1991). Relationship of work and family stressors to psychological distress: the independent moderating influence of social support, mastery, active coping, and self-focused attention. In P.L. Perrewé, (ed.) Handbook on Job Stress. *Journal of Social Behaviour and Personality,* Vol.6, No.7, 227-250.

Furnham, A., & Steele, H. (1993). Measuring locus of control: a critique of general, children's, health and work - related locus of control questionnaires. *British Journal of Psychology.* 84, 443-479.

Ganster, D.C. (1988). Improving measures of worker control in occupational stress research. In J.J. Hurrell, L.R. Murphy, S.L.Sauter & C.L. Cooper (eds) *Occupational Stress: Issues and Developments in Research.* New York: Wiley.

Ganster, D.C. (1989). Worker control and well-being: a review of research in the workplace. In S.L. Sauter, J.J. Hurrell & C.L. Cooper (eds). *Job Control and Worker Health.* New York: Wiley.

Ganster, D.C., & Schaubroeck, J. (1995). The moderating effects of self esteem on the work stress-employee health relationship. In R. Crandall & P.L. Perrewé (eds.) *Occupationall Stress: A Handbook.* pp167-177. Washington: Taylor and Francis.

Glowinkowski, S.P. & Cooper, C.L.. (1985). Current issues in organizational stress research. *Bulletin of the British Psychological Society,* 38, 212-216.

Gorman, D.M. (1988). Employment, stressful life events and the development of alcohol dependence. *Drug and Alcohol Dependence*, 22, 151-159.

Gorsuch, R.L. (1983). *Factor Analysis.* New Jersey: Lawrence Erlbaum.

Graham, S., & Reeder, L.G. (1972). Some factors in the chronic diseases. In H.E. Freeman, S.L. Levine. & L.G. Reeder. (eds). *Handbook of Medical Sociology.* 63-107. New Jersey: Prentice Hall.

Greenberger, D.B., Porter, G., Miceli, M.P., & Strasser, S. (1991). Responses to inadequate personal control in organizations. *Journal of Social Issues*, Vol 47, No 4, 111-128.

Greenberger, D.B., & Strasser, S. (1986) Development and application of a model of personal control in organizations. *Academy of Management Review.* Vol 11, No. 1, 164-177.

Greenberger, D.B., Strasser, S., Cummings, L.L., & Dunham, R.B. (1989). The impact of personal control on performance and satisfaction. *Organizational Behavior and Human Decision Processes*, 43, 29-51.

Hackman, J.R., & Oldham, G.R. (1975). Development of the job diagnostic survey. *Journal of Applied Psychology,* Vol, 60 No. 2 159-170.

Hakstian, A.R., Rodgers, W.T., & Cattell, R.B. (1982). The behavior of number of factors rules with simulated data. *Multivariate Behavioral Research*, 17, 193-219.

Handy, J.A. (1988). Theoretical and methodological problems within occupational stress and burnout research. *Human Relations*, Vol. 41, No. 5, 351-369.

Havlovic, S.J., & Keenan, J.P. (1991). Coping with work stress: the influence of individual differences. . In P.L. Perrewé, (ed.) *Handbook on Job Stress* [Special Issue]. *Journal of Social Behaviour and Personality,* Vol.6, No.7,199-212.

Hendrix, W.H., Ovalle, N.K., & Troxler, R.G. (1985). Behavioral and physiological consequences of stress and its antecedent factors. *Journal of Applied Psychology,* Vol. 70, No. 1, 188-201.

Hinkle, L, Jr. (1974). The effect of exposure to culture change, social change and changes in interpersonal relationships on health. In B.S. Dohrenwend & B.P. Dohrenwend (eds). *Stressful Lifevents: Their Nature and Effects.* New York: Wiley.

Holahan, C.J. & Moos, R.H. (1987). Personal and contextual determinants of coping strategies. *Journal of Personality and Social Psychology.* Vol 52, No. 5, 946-955.

Holmes, T. H., & Rahe, R.H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research*, 11, 213-218.

Holroyd, K.A. & Lazarus, R.S. (1982). Stress, coping and somatic adaptation. In L. Goldberger & S. Bresnitz (eds). *Handbook of Stress. Theoretical and Clinical Aspects*, 21-35. New York: Free Press.

House, J.S., McMichael, A.J., Wells, J.A., Kaplan, B.H., & Landerman, L.R. (1979). Occupational stress among factory workers. *Journal of Health and Social Behaviour,* 20, 139-160.

Human Resources (1997). February, p18.

International Labour Office. (1992). Preventing stress at work. *Conditions of Work Digest* 11(2).

Ivancevich, J.M., & Matteson, M.T. (1980). *Stress and Work.* Illinois: Scott Foresman and Company.

Jaccard, J., Turrisi, R., & Wan, C.K. (1990). *Interaction Effects in Multiple Regression.* Newbury Park, C.A: Sage Publications.

Jackson, S.E. (1989). Does job control control job stress. In S.L. Sauter, J.J. Hurrell & C.L. Cooper (eds). *Job Control and Worker Health.* New York: John Wiley & Sons Ltd.

Jackson, P. R., Wall, T.D., Martin, R., & Davids, K. (1993). New measures of job control, cognitive demand, and production responsibility. *Journal of Applied Psychology,* Vol, 78, No. 5, 753-762.

Johns, G. (1981). Difference scores measures of organizational behaviour variables: A critique. *Organizational Behavior and Human Performance.* Vol 27, 3, 443-463.

Johnson, J.V. (1989). Control, collectivity and the psychosocial work environment. In S.L Sauter, J.J. Hurrell & C.L.Cooper. *Job Control and Worker Health.* New York: John Wiley and Sons Ltd.

Johnson, J.H., & Sarason, I.G. (1978). Life stress, depression and anxiety: internal-external control as a moderator variable. *Journal of Psychosomatic Research,* Vol. 22,, 205 -208.

Kahn, R. L., & Byosiere, S. (1991). Stress in organizations. In M.D. Dunette & L.M. Hough. (eds.) *Handbook of Industrial and Organizational Psychology. 571-649.*

Kahn, R.L., Wolfe, D.M., Quinn, R.P., Snoek, J.D., & Rosenthal, R.A. (1964). *Organisational Stress: Studies in Role Conflict and Ambiguity.* New York: Wiley.

Kaid,L.L., & Wadsworth, A.J. (1989). Content analysis. In P. Emmert & L.C. Barrer (eds). *Measurement of Communication Behaviour.* 197-217. New York: Longman.

Kaiser, H.F. (1970). A second generation little jiffy. *Psychometrika*, 35, 401-416.

Karasek, R.A. (1979). Job demands, job decision latitude, and mental strain: implications for job redesign. *Administrative Science Quarterly,* 24, 285-308.

Karasek, R.A. (1990). Lower health risk with increased job control among white collar workers. *Journal of Organizational Behavior.* Vol 11, 171-185.

Karasek, R.A., Baker, D., Marxer, F., Ahlbom, A., & Theorell, T. (1981). Job decision latitude, job demands, and cardiovascular disease: a prospective study of swedish men. *AJPH,* Vol. 71, No. 7. 694-704.

Kasl, S.V. (1978). Epidemiological contributions to the study of work stress. *In* C.L. Cooper & R. Payne (eds.) *Stress at Work.* New York: Wiley.

Kasl, S.V. (1983). Pursing the link between stressful life experiences and disease: a time for reappraisal. In C.L. Cooper (ed). *Stress Research: Issues for the Eighties*, 79-102. Chichester. Wiley.

Kline, P. (1994). *An Easy Guide to Factor Analysis.* Routledge. London.

Kobassa, S.C., Maddi, S.R., & Kahn, S.(1982). Hardiness and health: a prospective study. *Journal of Personality and Social Psychology,*42, 168-177.

Koeske, G.F., Kirk, S.A., & Koeske, R.D. (1993). Coping with job stress: which strategies work best? *Journal of Occupational and Organizational Psychology,* 66, 319-335.

Latack, J.C. (1986). Coping with job stress: a conceptual evaluation framework for coping measures. *Journal of Organizational Behavior,* 13, 479-508.

Latack, J.C., & Havlovic. S.J. (1992). Coping with job stress: a conceptual evaluation framework for coping measures. *Journal of Organizational Behavior*, Vol. 13, 479-508.

Lazarus, R.S. (1966). *Psychological Stress and the Coping Process.* New York: McGraw-Hill.

Lazarus, R.S. (1991). Psychological stress in the workplace. In P.L. Perrewé, (ed.) Handbook on Job Stress [Special Issue]. *Journal of Social Behaviour and Personality,* Vol.6, No. 7, 1-13.

Lazarus, R.S. (1993). Coping theory and research: past, present, and future. *Psychosomatic Medicine. 55:234-247.*

Lazarus, R.S., & Folkman, S. (1984). *Stress Appraisal, and Coping.* New York: Springer Publishing Co.

Lazarus, R.S., & Launier, R. (1978). Stress-related transactions between person and environment. In L. A. Pervin & M. Lewis (eds). *Perspectives in Interactional Psychology.* New York: Plentum Press.

Lefcourt, H.M ., Martin, R.A., & Saleh, W.E. (1984) Locus of control and social support: interactive moderators of stress. *Journal of Personality and Social Psychology,.*Vol 47, 2, 378-389.

Lefcourt, H.M., Miller, R.S., Ware, E.E., & Sherk, D. (1981). Locus of control as a modifier of the relationship between stressors and moods. *Journal of Personality and Social Psychology,* Vol 41, 2, 357-369.

Locke, E.A., & Taylor , M.S. (1990). Stress, coping and the meaning of work. In A. Monat & R.S.Lazarus (eds.) *Stress and Coping. An Anthology* (3rd Ed.) New York. Columbia University Press.

Matteson, M.T., & Ivancevich, J.M. (1979). Organizational stressors and heart disease: a research model. *Academy of Management, Vol. 4, No. 3, 347-357.*

Mattlin, J.A., Wetherington, E., & Kessler, R.C. (1990). Situational determinants of coping and coping effectivness. *Journal of Health and Social Behavior.* Vol 31, March, 103-122.

McGrath, J. E. (1970). A conceptual formulation for research on stress. In J.E. McGrath (ed). *Social and Psychological Factors in Stress.* New York: Holt Rinehart and Winston Inc.

McKay, C.J., & Cooper, C.L. (1987). Occupational stress and health: some current issues. In C.L. Cooper & I.T. Robertson (eds.) *International Review of Industrial and Organizational Psychology,* 167-197. John Wiley and Sons Ltd.

McCrae, R.R. (1992). Situational determinants of coping. In B.N. Carpenter (ed). *Personal Coping Theory, Research and Application.* 65-76. Westport, Conn., Praeger.

Mechanic, D. (1978). *Medical Sociology. A Selective View.* NY: Free Press.

Miller, S.M. (1979). Controllability and human stress: method, evidence and theory. *Behavior Research and Therapy*, Vol 17, pp287-304.

Miller, S.M. (1981). Predictability and human stress: toward a clarification of evidence and theory. *In Advances in Experimental Social Psychology*, Vol 14

Miller, S.M. (1987). Monitoring and blunting: validation of a questionnaire to assess styles of information seeking under threat. *Journal of Personality and Social Psycholgy*, 52, 345-353.

Monroe, S.M., & Kelley, J.M. (1995). Measurement of stress appraisal. In S. Cohen, R.C. Kessler, & L. Underwood Gordon. (eds.) *Measuring Stress: A Guide for Health and Social Scientists.* New York: Oxford University Press.

Moos, R.H., & Swindle, R. W. (1990). Person-environment transactions and the stressor-appraisal-coping process. *Psychological Inquiry,* 1 (1), 30-32.

Motowildo, S.J., & Packard, J.S., & Manning, M.R (1986). Occupational stress; its causes and consequences for job performance. *Journal of Applied Psychology.* 71, 618-629.

Moyle, P. (1995). The role of negative affectivity in the stress process: tests of alternative models. *Journal of Organizational Behavior,*16, 647-668.

Murphy, L. R., Dubois, D., & Hurrell, J.J. (1986). Accident reduction through stress management. *Journal of Business and Psychology* , 1, 173-182.

Neuman, W.L. (1994). *Social Research Methods: Qualitative and Quantitative Approaches* (2nd Ed.). Boston: Allyn and Bacon.

Newton, T.J. (1989). Occupational stress and coping with stress: a critique. *Human Relations.* Vol 42, No. 5, 441-461.

Newton, T.J., & Keenan, A. (1985). Coping with work-related stress. *Human Relations.* Vol 38, No. 2, 107-126.

O'Brien, T., & DeLongis, A. (1996). The interactional context of problem-, emotion-, and relationship- focused coping: the role of the big five personality factors. *Journal of Personality*, 64: 4, December, 775-813.

Occupational Health and Safety in Employment Act (1992). Occupational Safety and Health Service, Department of Labour. NZ: Department of Labour.

O'Driscoll, M.P., & Cooper, C.L. (1994). Coping with work-related stress: a critique of existing measures and proposal for an alternative methodolgy. *Journal of Occupational and Organizational Psychology*, 67, 343-354.

O'Driscoll, M.P., & Cooper, C.L. (1996). A critical incident analysis of stress-coping behaviours at work. *Stress Medicine, Vol. 12, 123-128.*

O'Doherty, F., & Davies, J.B. (1988). Life events, stress and addiction. In S.Fisher & J.Reason (eds). *Handbook of Life Stress, Cognition and Health* Chichester: Wiley.

Parkes, K.R. (1982). Occupational stress among student nurses: a natural experiment. *Journal of Applied Psychology,* 67,784-796.

Parkes, K.R. (1984). Locus of control, cognitive appraisal, and coping in stressful episodes. *Journal of Personality and Social Psychology.*Vol 46 3, 655-668.

Parkes, K.R. (1986). Coping in stressful episodes: the role of individual differences, environmental factors, and situational characteristics. *Journal of Personality and Social Psychology, Vol. 51, No. 6, 1277-1292.*

Parkes, K.R. (1989). Personal control in an occupational context. In A. Steptoe & A. Appels (eds.) *Stress, Personal Control and Health.* Brussels-Luxembourg: John Wiley and Sons Ltd.

Parkes, K.R. (1990). Coping, negative afffectivity, and the work environment: additive and interactive predictors of mental health. *Journal of Applied Psychology*, 75, 399-409.

Parkes, K.R. (1991). Locus of control as moderators: an explanation for additive versus interactive findings in the demand-discretion model of work stress. *British Journal of Psycholgy,* 82, 291-312.

Parkes, K.R. (1994). Personality and coping as moderators of work stress processes: models, methods and measures. *Work and Stress.* Vol. 8, No. 2, 110-129.

Parkes, K.R., Mendham, C.A., & Von Rabenau, C. (1994). Social support and the demand-discretion model of job stress: tests of additive and interactive effects in two samples. *Journal of Vocational Behavior,* Vol. 44, 91-113.

Payne, R.L., Jabri, M.M., Pearson, A.W. (1988). On the importance of knowing the affective meaning of job demands. *Journal of Organizational Behavior,* Vol 9, 149-158.

Payne, R.L., Jick, T.D., & Burke, R.J. (1982). Whither stress research?: an agenda for the 1980's. *Journal of Occupational Behavior,* Vol 3, 131-145.

Peacock, E.J., & Wong, P.T.P., & Reker (1993). Relations between appraisals and coping schemas: support for the congruence model. *Canadian Journal of Behavioural Science,* 25:1, 64-80.

Perrewé, P.L., & Ganster, D.C. (1989) The impact of job demands and behavioural control on experienced job stress. *Journal of Organizational Behavior.* Vol 10, 213-229.

Peterson, C., Maier, S.F., & Seligman, M.E.P. (1993). *Learned Helplessness. A Theory for the Age of Personal Control.* New York: Oxford University Press.

Potter, T. (1994). Being at work is hard work. *Sunday Star Times*, Nov 13.

Riggs, M.L., Warka, J., Babasa, B., Betancourt, R., & Hooker, S. (1994). Development and validation of self-efficacy and outcome expectancy scales for job related applications. *Educational and Psychological Measurement*, Vol. 54, No. 3. 793-802.

Rosenbaum, M. (1993). The three functions of self-control behavior: redressive, reformative and experiential. *Work and Stress,* Vol. 7, No. 1, 33-46.

Rothbaum, F. (1981). The effect of sufficiency and necessity on perceptions of control and responsibility. *Journal of Personality*, 49:1, 85-100.

Rothbaum, F., Weisz, J.R., & Snyder, S.S. (1982). Changing the world and changing the self: a two process model of perceived control. *Journal of Personality and Social Psychology*, Vol 42, No 1, 5-37.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied.* 80, 1-28.

Rummel, R.J. (1970). *Applied Factor Analysis.* Evanston: Northwestern University.

Schaubroeck, J., & Merritt, D.E. (1997). Divergent effects of job control on coping with work stressors: the key role of self efficacy. *Academy of Management Journal*, Vol. 40, No. 3, 738-754.

Shirom, A. (1988). Situationally anchored stress scales for the measurment of work-related stress. In J.J. Hurrell, L.R. Murray, S.L. Sauter, C.L. Cooper (eds.) *Occupational Stress: Issues and Development in Research*, 66-75. London: Taylor and Francis.

Schuler, R.S. (1982). An integrative transactional process model of stress in organizations. *Journal of Occupational Behavior,* 3, 5-20.

Schuler, R.S. (1984). Organizational stress and coping: A model and overview. In A.S. Sethi & R.S. Schuler (eds). *Handbook of Organizational Stress Coping Strategies*, 35-69. Cambridge MA: Ballinger.

Schuler, R.S. (1985). Integrative transactional process model of coping with stress in organizations. In T. A. Beehr & R.S. Bhagat (eds). *Human Stress and Cognition in Organizations. An Integrative Perspective,* 347-374. New York: Wiley.

Schwalbe, M.L. (1985). Autonomy in work and self-esteem. *The Sociological Quarterly,* Vol 26, No. 4, pp 519-535.

Schwartz, J.E., & Stone, A.A. (1993). Coping with daily work problems. contributions of problem content, appraisals and person factors. *Work and Stress,* Vol 7, No. 1, 47-62.

Selye, H. (1983). The stress concept: past, present and future. In C.I. Cooper (ed). *Stress Research.* Chichester: John Wiley and Sons.

Siegal, A.L., & Ruh, R.A. (1973). Job involvement, participation in decision making, personal background and job behavior. *Organizational Behavior and Human Performance*, 9, 318-327.

Silver, R.I., & Wortman, C.B. (1981). Coping with undesireable life events. In J.Garber., & M.E.P. Seligman (eds). *Human Helplessness: Theory and Application,* 279-340. New York:Academic Press.

Skinner, E.A. (1995). *Perceived Control, Motivation and Coping.* Thousand Oaks, C.A: Sage Publications.

Smith, C.A., & Ellsworth, P.C. (1987). Pattems of appraisal and emotion related to taking an exam. *Journal of Personality and Social Psychology,* Vol 52, No 3, 475-488.

Smith, C.S., Tisak, J., Hahn, S.E., & Schmieder, R.A (1997). The measurement of job control. *Journal of Organizational Behavior*, Vol 18, 225-237.

Spector, P.E. (1986) Perceived control by employees: a meta-analysis of studies concerning autonomy and participation at work. *Human Relations.* Vol.39, No. 11, 1005-1016.

Spector, P.E. (1987) Interactive effects of perceived control and job stressors on affective reactions and health outcomes for clerical workers. *Work and Stress.* Vol. 1, No. 2, 155-162.

Spector, P.E. (1988). Development of the work locus of control scale. *Journal of Occupational Psychology.* 61, 335-340.

Spector, P.E. (1994). Using self-report questionnaire in OB research: a comment on the use of a controversial method. *Journal of Organizational Behavior,* Vol. 15, 385-392.

Spector, P. E., & O'Connell, B.J. (1994). The contribution of personality traits, negative affectivity, locus of control and type A to the subsequent reports of job stressors and job strains. *Journal of Occupational and Organizational Psychology,* Vol. 67, 1-11.

Stone, E.F. (1990). Moderator variables in research: a review and analysis of conceptual and methodological issues. In G.R. Ferris, & K.M. Rowland (eds). *Theoretical And Methodological Issues In Human Resource Management*, 161-199. London: JAI Press.

Stone, A.A., Greenberg, M.A., Kennedy-Moore, E., & Newman, M.G. (1991). Self-report, situation-specific coping questionnaires: what are they measuring? *Journal of Personality and Social Psychology*, Vol. 61, No. 4, 648-658.

Sullivan, M. (1995) Taking charge of stress: strategies for the workplace. *New Zealand Business, September , 14-21.*

Sutherland, V.J., & Cooper, C.L. (1988). Sources of work stress. In J.J.Hurrell, L.R. Murphy, S.L. Sauter., C.L. Cooper (eds.). *Occupational Stress: Issues and Developments in Research.* New York: Taylor and Francis.

Sutton, R., & Kahn, R.L. (1986). Prediction, understanding and control as antidotes to organizational stress. In J. Lorsch (ed) *Handbook Of Organizational Behavior.* Englewood Cliffs, NJ: Prentice hall.

Tabachnick, B.G., & Fidell, L.S. (1989). *Using Multivariate Statistics.* (2nd Ed). New York: Harper and Row Publishers.

Taylor, S.E., & Aspinal, L.G. (1996). Mediating and moderating processes in psychosocial stress. In H.B. Kaplan (ed). *Psychosocial Stress: Perspectives on Structure, Theory, Life-Course, and Methods.* New York: Academic Press.

Terry, D.J. (1991). Coping resources and situational appraisals as predictors of coping behavior. *Personality and Individual Differences,* 12,1031-1047.

Terry, D.J. (1994). Determinants of coping: the role of stable and situational factors. *Journal of Personality and Social Psychology ,* Vol. 66, No. 5, 95-910.

Terry, D.J., Nielsen, M., & Perchard, L. (1993). Effects of work stress on psychological well-being and job satisfaction: the stress-buffering role of social support. *Australian Journal of Psychology,* Vol. 45, No. 3, 16-175.

Tetrick, L.E., & LaRocco, J.M. (1987) Understanding, prediction, and control as moderators of the relationships between perceived stress, satisfaction, and psychological well-being. *Journal of Applied Psychology*, Vol 72, N0. 4, 538-543.

Thoits, P. A. (1983). Dimension of life events that influence psychological distress: an evaluation and synthesis of the literature. In H.B. Kaplan. *Psychosocial Stress: Trends in Theory and Research.* 33- 103. New York: Academic Press.

Thompson, S.C., Sobolew-Shubin, A., Galbraith, M.E., Schwankovsky, L., & Cruzen, D. (1993). Maintaining perceptions of control: finding perceived control in low-control circumstances. *Journal of Personality and Social Psychology*, Vol 64, No 2, 293-304.

Thompson, S.C., & Spacapan, S. (1991). Perceptions of control in vulnerable populations. *Journal of Social Issues*, Vol 47, No 4, 1-21.

Totman, R. (1979). *Social Causes of illness.* London: Souvenir Press.

Trenberth, L.D., Dewe, P. J. & Walkey, F.H. (1996). A factor replication approach to the measurement of coping. *Stress Medicine,* Vol, 12, 71-79.

Van Harrison, R. (1985). The person-environment fit model and the study of job stress. In T.A. Beehr & R.S. Bhagat (eds). *Human Stress and Cognition in Organizations.* 347-374.

Van Sell, M., Brief, A.P., & Schuler, R.S. (1981). Role conflict and role ambiguity: integration of the literature and directions for future research. *Human Relations,* Vol 34, No. 1, 43-71.

Vitaliano, P.P., DeWolfe, D.H., Maiuro, R.D., Russon, J., & Katon, W. (1990). Appraised changeability of a stressor as a modifier of the relationship between coping and depression: a test of the hypothesis of fit. *Journal of Personality and Social Psychology*, Vol 59, No 3, 582-592.

Vroom, V.H. (1959). Some personality determinants of the effects of participation. *Journal of Abnormal and Social Psychology*, 59, 322-327.

Wagner, J.A. (1994). Participation's effects on performance and satisfaction: a reconsideration of research evidence. *Academy of Management Review.* Vol, 19, No.2, 312-330.

Wallston, K.A., Wallston, B., Smith, S., & Dobbins, C.J. (1987). Perceived control and health. *Current Psychological Research and Reviews*, Spring, Vol. 6, No. 1, 5-25.

Walkey, F.H., & McCormick, I.A. (1985). Multiple replication of factor structure: a logical solution for a number of factors problems. *Multivariate Behavioral Research*, 20, 57-67.

Warr, P.B. (1990). Decision latitude, job demands, and employee well-being. *Work and Stress, Vol. 4,* No. 4, 285-294.

Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology,* Vol. 54, No. 6, 1063-1070.

Weiner, B. (1986). *An Attributional Theory of Motivation and Emotion.* New York: Springer.

White, R.W. (1959). Motivation reconsidered: the concept of competence.*Psychological Review,* 66,297-333.

Williamson, A.M. (1993). Stress at work: defining stress. Australian National Occupational Health and Safety Commission. 30th meeting. Agenda item 22.

Williamson, A.M. (1994). Managing stress in the workplace: part 2 - the scientific basis (knowledge base) for the guide. *International Journal of Industrial Ergonomics,* 14.

Zoski, K., & Jurs, S. (1996). An objective counterpart to the visual scree test for factor analysis: the standard error scree. *Educational and Psychological Measurement,* 56, No. 3, 443-451.

Zwick, W.R., & Velicer, W.F. (1986). Comparison of five rules for determining the number of components to retain. *Psychological Bulletin*, 99, 432-442.