

**Somatic and Cognitive Stress Management  
Techniques: Their Effect on Measures of Stress  
and Competency in Managers**

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### **Attestation of authorship**

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements) nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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### **Ethical Approval**

Ethical approval for this research was granted by the Auckland University of Technology Ethics Committee on 26<sup>th</sup> May 2003 approval number 03/76.

## **Publications and Conference Presentations Arising from this Thesis**

### **Publications in peer-reviewed journals**

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Le Fevre, M., Kolt, G. S., & Matheny, J. (2006). Just the right amount of stress please: Yerkes and Dodson revisited. British Academy of Management Conference Proceedings 2006: Building International Communities through Collaboration (CD-ROM). Belfast, Northern Ireland: British Academy of Management.

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## **Abstract**

Stress management interventions (SMIs) are increasingly used by organisations across both private and public settings. Such interventions are employed with the expectation that they will be effective in reducing levels of stress in participants and in turn, will provide a return to the organisation by way of increased productivity through performance improvements of those employees whose stress has been reduced. Despite the increasing popularity of SMIs, there exists a lack of evidence on whether they have any effect on the performance of users, and on the relative effectiveness of the components that often make up SMIs. Although the literature addressing SMIs and their effects is increasing, relatively few studies directly compare different techniques, and even fewer employ randomised controlled designs or follow-up measures. The assumed relationship between the reduction of stress and improvement of managerial performance does not appear to have been tested with a randomised controlled trial. The term “stress” as used in this study specifically denotes the concept of “distress” as defined by Selye (1956; 1987). To support this use of the term, the evolution of current terminology in the field of occupational stress is briefly discussed with specific reference to the development and influence in the wider literature of the Yerkes Dodson Law (Yerkes, 1909).

The aims of this thesis were to (1) compare the relative effectiveness of two component techniques often used in SMIs (somatic and cognitive techniques) in the reduction of stress, and (2) to examine the effect of the use of these techniques on the performance of managers in their workplace. Study One was a randomised controlled trial assessing the effect of the use of somatic and cognitive stress management interventions on stress and performance in managers. Participants were 112 corporate managers who were randomly assigned to one of two intervention groups (somatic or

cognitive technique training) or to a wait list control group. The intervention groups were trained in their respective techniques over a 4 week period in brief (20-30 minute) face-to-face workshop sessions. Participants were provided with recordings of the techniques to assist practice between training sessions. At baseline, stress was assessed using the Occupational Stress Inventory – Revised Edition (OSI-R, Osipow, 1998), and managerial performance was assessed with the Personal Qualities Competency from the Inventory of Management Competencies (IMC, Saville Holdsworth Ltd., 1993). In the case of the IMC, self, colleague, and subordinate assessments were used. On completion of the 4 week intervention, the OSI-R was readministered, and then at week 12 and week 24, follow-up assessments of stress and managerial performance took place. At the week 12 follow-up, MANOVA for the OSI-R showed no significant difference between the somatic and cognitive interventions in their effect on stress, although both interventions did reduce stress relative to the wait list control group, as measured by the OSI-R. A significant intervention effect was also shown ( $\eta_p^2 = 0.089$ ,  $p = 0.002$ ) for the combined intervention groups (cognitive and somatic). MANOVA for the Personal Qualities Competency showed a significant intervention effect for the self ( $\eta_p^2 = 0.077$ ,  $p = 0.008$ ) and colleague ( $\eta_p^2 = 0.064$ ,  $p = 0.013$ ) assessments, and a nonsignificant effect ( $\eta_p^2 = 0.032$ ,  $p = 0.063$ ) for the subordinate assessment at the week 12 follow-up point. Unfortunately, withdrawal and attrition reduced the sample size below that required for analysis at the week 24 follow-up point.

Study Two was designed as a follow-up qualitative study that aimed to gather information on participants' perceptions of the effects of the interventions on their stress and performance, and of their reasons for completion or noncompletion of the SMI. In this study, 14 participants from Study One took part in semi-structured

interviews after the final follow-up assessment (week 24) for that study. The interviews were structured to elicit responses concerning participants' perceptions of the demands of their workplace and their stress, their experience of using the stress management techniques (including perceived benefits or behavioural changes from that use), their reasons for completion or noncompletion of the intervention, and their own definitions of stress. Several important findings emerged from this study. First, participants described their workplace as characterised by high pressure and demand with rapid change and a perceived lack of personal control. Second, participants who continued to use the techniques they had learned after the formal intervention was completed did so because they perceived personal benefits in terms of their ability to relax and in terms of their perceptions of workload and demand. For those who did not complete the intervention, the predominant reasons reported for noncompletion were workplace task demands, lack of top management commitment to an intervention of this nature, and lack of personal gain once the techniques had been learned. In relation to defining stress, participants did not have agreement, but rather reported definitions reflecting a multifaceted complex amalgam of physiological, psychological, and emotional aspects.

Research such as this is important in terms of its contribution to the general field of occupational stress and its alleviation. It addresses a long-standing need to assess the relative effectiveness of some of the subcomponents commonly employed as part of more complex multifaceted approaches to SMIs, and the effect of the techniques on both stress and performance. This thesis makes several contributions to existing knowledge. First, this thesis clarifies the origin of the Yerkes Dodson Law and its relevance to current stress management thinking. In management texts distress has come to be regarded as too much stress or pressure. This is coupled with the idea

that some stress has a positive impact on performance due to an earlier and erroneous interpretation of the Yerkes Dodson Law. Second, Study One provides evidence of the relative effectiveness of two different SMI components in the reduction of individuals' occupational stress, as well as evidence for the effectiveness of individual focussed SMIs in the reduction of stress in corporate managers. Third, Study One provides evidence for a positive effect on managers' performance consequent to their use of stress management techniques. This thesis also sheds light on managers' definitions of stress, and their reasons for completion or noncompletion of SMIs. In summary, individual focussed (or secondary) SMIs have the potential to reduce stress and to improve performance in corporate managers as perceived by both the individual and others in the workplace.

# 1 Chapter One: Stress

## 1.1 *Introduction*

Stress has been the subject of active research for at least six decades (Cooper & Dewe, 2004). Occupational stress, in particular, assumed an increasing importance in the general stress literature as the potential costs, at both the individual and organisational level, began to be realised (Atkinson, 2000b; Cartwright, 2000; Karasek & Theorell, 1990; Midgley, 1997). Despite this interest and activity there was still little hard evidence on which to base decisions concerning how organisations should engage in stress management activities, (i.e., what were the best methods to adopt), nor was there convincing evidence that there was any reliable “payback” for the organisation that did choose to implement any kind of stress management intervention (Giga, Noblet, Faragher, & Cooper, 2003; van der Hek & Plomp, 1997; van der Klink, Blonk, Schene, & van Dijk, 2001).

Van der Hek and Plomp (1997) stated that, despite the large volume of research generated between 1987 and 1994, the effectiveness of the different components that may make up stress management interventions was not known, the longer term effects of interventions were not known, and that evidence for payback to the participating organisation was also lacking. This may have been partly due to a general lack of long-term follow up and a frequent lack of control groups in the reported trials. The more recent review of UK-based trials by Giga et al. (2003) may have shown some small improvement in both trial design and outcome measures, but conclusive evidence was still lacking.

A further feature of the current occupational stress research literature is the relative under-representation of commercial settings in research interventions. The majority of research-related stress management interventions have been carried out in health or education related settings, though the techniques developed and tested in these settings are the ones frequently then employed in commercial stress management interventions.

This study attempts to address some of the above deficits by comparing the effectiveness of two individual-based stress management approaches (somatic and cognitive) against a wait list control with medium and long-term follow-up, and by examining the effect that the practice of these stress management techniques may have on the performance of managers in commercial organisations as measured by a multisource competency assessment.

## *1.2 Stress*

Selye's original ideas regarding what he later came to refer to as stress arose in his early days as a medical student (Selye, 1956, 1964) when he noticed that virtually all disease states shared a basic set of signs and symptoms in addition to those which led to differential diagnoses. Selye avoided using a single term such as stress for some time tending to use terms such as "nocuous" to denote outside agencies that may lead to the "syndrome of just being sick". This syndrome of just being sick was Selye's original term for the stereotypical response of an organism to a wide range of chemical, biological, or physical stimuli (Selye, 1936, 1956). Robert Hooke also adopted the terms stress and strain in an engineering context, where stress referred to the application of a load to an area of a given material, and strain represented the resulting change or deformation in that material (Cooper & Dewe, 2004). Selye has been criticised for



employing the term stress and it has been assumed that Hooke's use of the term was the prime reason for Selye's adoption of it, yet the word stress has been used to denote hardship, adversity, and various forms of affliction, or force or pressure used on a person to compel or extort since at least the early fourteenth century (Stress, n 1989). Likewise, strain has had the multiple connotations of raising to a high emotional pitch, exerting oneself, being used beyond one's endurance, or to tighten up the string of a musical instrument since the same time (Strain, v 1989). Distress, the other word that gets much use in the general field that has become known as stress in modern parlance, has carried the meanings of pressure of "adversity, trouble, sickness, pain, sorrow, anguish or affliction affecting the body, spirit or community" since at least the late thirteenth century (Distress, n 1989). The later use of the words stress and strain in engineering by Robert Hooke to denote the area over which a load or demand is applied, and the deformation or change in form that results, respectively, is entirely in line with these earlier colloquial uses, and one might suspect they were chosen for precisely their easy comprehension in the context of Hooke's Law of Elasticity (Callister, 2005). To suggest that Selye's (1956) use of the terms stress and distress was somehow confused given this rich and continuous background to their highly descriptive use seems somewhat disingenuous. Even his creation of the neologisms *eustress* to denote positive response to pressure or demand, and *hypostress* and *hyperstress* to denote too little and too much stress seems consistent with earlier forms.

For consistency, however, strain may have been a better term to use to represent the health-related manifestations due to exposure to Selye's "nocuous agents" than stress. Since this early use of the term stress, there has been continuing confusion and disagreement on the terminology in the field (Levi, 1998). Selye, however, settled on another neologism, "stressor", to denote external loads, demands, or other influences

that could produce stress in organisms so exposed. Many more recent authors have adopted this same terminology (Code & Langan-Fox, 2001; Maslach, 1998; Quick, Nelson, Quick, & Orman, 2001). Some authors, however, used stress to denote such external forces and strain to denote the resulting reaction (Edwards, 1998), while still others failed to clearly define how they were using the terminology at all (e.g., Smit & Schabracq, 1998; Wiholm, Arentz, & Berg, 2000). Some have simply used stress as a blanket term covering the whole process of external influence, appraisal, reaction, and effect (Deary et al., 1996; Shupe & McGrath, 1998). Even at the most basic level of terminology, a problem has existed for some time in distinguishing between independent, intervening, and dependant variables where stress research is concerned.

A further complication arises in stress research in that at least four distinct disciplines carry out investigations in this area, each having its own set of norms and paradigms: medicine, psychology, sociology, and management (Cummings & Cooper, 1998). This situation makes it even more difficult to compare different concepts of stress or to develop coherent theory. Stress, as used in the literature, may refer to external influences acting on individuals, physiological reactions to such influences (Mayer, 2000; Selye, 1956), psychological interpretation of both the external influences and the physiological reaction thereto (Code & Langan-Fox, 2001; Selye, 1983), and adverse behavioural reactions exhibited in work, social situations, or both (Le Fevre, Matheny, & Kolt, 2003; Richmond & Kehoe, 1999; Vasse, Nijhuis, & Kok, 1998).

Though Selye is sometimes credited as the “father of stress” the earlier work of Cannon (1914, 1932) is fundamental to an understanding of what is currently regarded as stress. Cannon’s (1914) paper was the first to describe what has become known as the fight or flight reaction as the body’s response to any threat. Having described the effects of adrenalin Cannon comments “These changes in the body are, each one of them,

*directly serviceable in making the organism more efficient in the struggle which fear or rage or pain may involve;* for fear and rage are organic preparations for action, and pain is the most powerful known stimulus to supreme exertion.” (italics as in the original paper) (Cannon, 1914, p. 372). Cannon (1932) suggested that the body will react to all threats in a similar manner whether such a reaction is immediately appropriate or not. This, in combination with the quote above, may be the first instance or indication that emotional reactions to, and interpretations of, external events may play a key part in the psycho-physiological phenomenon that has come to be known as stress. The other key concept that originated with Cannon was that of homeostasis, the idea that the body reacts physiologically to maintain its internal milieu against various disrupting influences. This idea formed part of the basis for Selye’s (1956) General Adaptation Syndrome (GAS). Selye posited three stages for this syndrome. In the initial alarm stage the organism first responds to an external demand or load in a way analogous to Cannon’s fight or flight reaction. This was followed by a stage of resistance if the demand or load persisted in which the body’s defences remained active beyond their normal baseline and in which tissue injury may become apparent as in Selye’s “diseases of adaptation”. Continued demand lead to the exhaustion stage in which the body’s reserves became depleted and severe disease or death may result. Though the GAS is still often used as an example to demonstrate a potential physiological path for a stress reaction, it is not clear how it relates to a general concept of stress or even if the two are really referring to the same thing (Cooper & Dewe, 2004). A seldom acknowledged aspect of Selye’s work on stress is that the psychological aspects were virtually ignored and his work remained firmly entrenched in a physiological paradigm, though the role of psychological arousal was referred to with acknowledgement that not all stressors may be physical in nature (Selye, 1982). Despite Selye’s regarding stressors as

primarily physical in nature, he did allow for interpretation of those physical variables in that he suggested that distress or negative stress resulted from negative interpretations or reactions to stimuli, while eustress or positive stress could result from more positive interpretation or reactions (Selye, 1987).

As mentioned previously, several distinct disciplines are represented within the broader field of stress research. Whereas Selye primarily represented a physiological approach, others came primarily from medical or psychological viewpoints. These viewpoints may, perhaps, be represented by the coronary heart disease (CHD) risk view of stress as represented by the concept of type A and type B behaviour patterns developed by Friedman and Rosenman (1959), in the development and use of the Social Readjustment Rating Scale (Holmes & Rahe, 1967), and in the development and use of the Hassles and Uplifts Scales (Kanner, Coyne, Schaeffer, & Lazarus, 1981).

The Holmes and Rahe Social Readjustment Rating Scale (SRRS) (Holmes & Rahe, 1967), though not a measure of stress in itself, may be one of the best known methods for assessing the risk of developing any of the wide range of health problems associated with stress. It is frequently referred to in the popular and self-help stress literature (Cooper & Dewe, 2004). This scale attempts to derive a rating for the relative risk of disease according to the number of Life Change Units (LCU) accumulated within the preceding twelve months. A life crisis was defined as any cluster of life change events that total 150 LCU or more in any one year. The SRRS has been criticised in that it fails to distinguish between change events that may be generally regarded as positive, (e.g., marriage) and those that would usually be regarded as negative, (e.g., the death of a spouse). It has also been criticised in that it takes an entirely objective view of events and does not allow for any interpretive act on the part of the individual experiencing the events.

Type A and B behaviour patterns were discerned as relating to the relative risk of coronary heart disease (CHD), with those people exhibiting type A patterns having a higher risk than those exhibiting a type B pattern (Friedman & Rosenman, 1959). According to Friedman and Rosenman, Type A behaviour is typified by an emotional complex characterised by intense ambition, competitive drive, preoccupation with deadlines, and a high sense of time urgency. Those with a type B behaviour pattern lack this driving emotional complex. Later work on the so called “coronary prone personality” suggested that the type A description may be too broad and that a truer picture of such a coronary-prone personality may be that of someone with some negative emotions (Booth-Kewley & Friedman, 1987). This has resonance with the idea that daily hassles may be a major source of stress (Kanner et al., 1981) and perhaps be better predictors of stress and illness than the relatively objective Life Events approach of the SRRS (Holmes & Rahe, 1967). In this context hassles are considered experiences or conditions that are salient to the individual and are appraised negatively by the individual. In contrast to this the concept of uplifts is of experiences or conditions that are salient to the individual and are appraised as positive or favourable by the individual.

A commonality within all of these theories and models is that they relate life events, and in some cases the individual’s interpretations of those events, to the relative risk of disease in some form or other. In the case of type A and B behaviours the risk is of CHD. In the case of the SRRS and Hassles and Uplifts model the risks are more general. This seems to be largely consistent with Selye’s original concepts of stress and the GAS in that he posited that stressors in the individual’s environment give rise to stress in the individual. Furthermore, Selye suggested that stress may be distress, (negative or harmful stress), or eustress (positive or beneficial stress) depending on the

individual's appraisal or reaction to the stressor. The idea of eustress seems to be often confused with Selye's early conceptions of hypostress and hyperstress, simply too little or too much stress. Despite criticism of these earlier concepts, the idea that some stress may be good is still expressed (Bishop, 2001), and is commonly found in management texts (e.g., Certo, 2003; Lussier, 2002; Schermerhorn, 2003). Given that stress seems to have become synonymous with distress as described by Selye (Le Fevre et al., 2003) this has potential to cause considerable confusion. The suggestion that some level of stress can be good derives largely from the questionable application of the Yerkes Dodson Law which seems to have become an accepted "truth" as a descriptor of the relationship between stress and performance in the workplace (Le Fevre et al., 2003). If the above interpretation were correct, and performance was linked to stress levels through an inverted "U" curve relationship, as represented by current interpretations of the Yerkes Dodson Law, then methodologies such as that employed in the study following would be fatally flawed. The flaw being that performance may be either increased, or decreased, by a reduction in stress level depending on where on the inverted "U" curve a subject was prior to the intervention. If they were in the descending portion of the curve the stress reduction would be expected to increase performance. If they were in the ascending portion, or indeed at the peak, however, stress reduction would be expected to reduce performance. Such conflicting responses within an experimental group would be likely to cancel each other and result in an overall small and insignificant effect. The following section examines the growth of the Yerkes Dodson Law from its original formulation to its current interpretation and use, or misuse, in the literature in order to support the methodology employed in Study One in this thesis.

### *1.3 The development of the Yerkes Dodson Law*

The findings of Yerkes and Dodson (1908) have grown from their original formulation as the “Relation of Strength of Stimulus to Rapidity of Habit Formation” to a general law that appears to be accepted as relating any of a wide variety of independent variables to an equally wide variety of dependent variables according to an inverted U function. In particular, in management, an acceptance has arisen, and is promulgated in management texts (e.g., Campling, Poole, Weisner, & Schermerhorn, 2006; Kreitner & Kinicki, 2004; Schermerhorn, 2003) and the practitioner literature (Benson, 2005; Harrison, 1993; Murtagh, 1998), that there is an inverse U relationship between stress or anxiety as an input and performance as an output. There is, however, very little evidence on which to base such a conclusion. Some typical examples from practitioner publications illustrate the point “The Yerkes-Dodson Law states that performance increases as anxiety levels rise. Performance reaches its peak when anxiety is at an ideal level. If anxiety is too high, however, performance declines.” (Murtagh, 1998, p. 31) This article has the inspiring title “Adding just the right amount of job insecurity aids attitude” and,

Yerkes and Dodson discovered that an optimal combination of arousal and performance exists for any task. ... the psychologists systematically starved rats so they would work harder to get at a piece of cheese at the end of a maze. ... systematically starving the rats worked very well –up to a point– after which performance began to suffer. The overall pattern of performance, therefore, ended up looking like an inverted U shaped curve. (Harrison, 1993, p. 9)

Yerkes and Dodson do not mention arousal, didn’t use rats, a maze, or starvation, and showed no apparent intent that their findings should in any way apply to

humans. Even management literature considered rather more academic is not innocent of misrepresenting Yerkes and Dodson: “In 1908 these two demonstrated that efficiency increases when stress increases, but only up to a point; after that performance falls off dramatically” (Benson, 2005, p. 55).

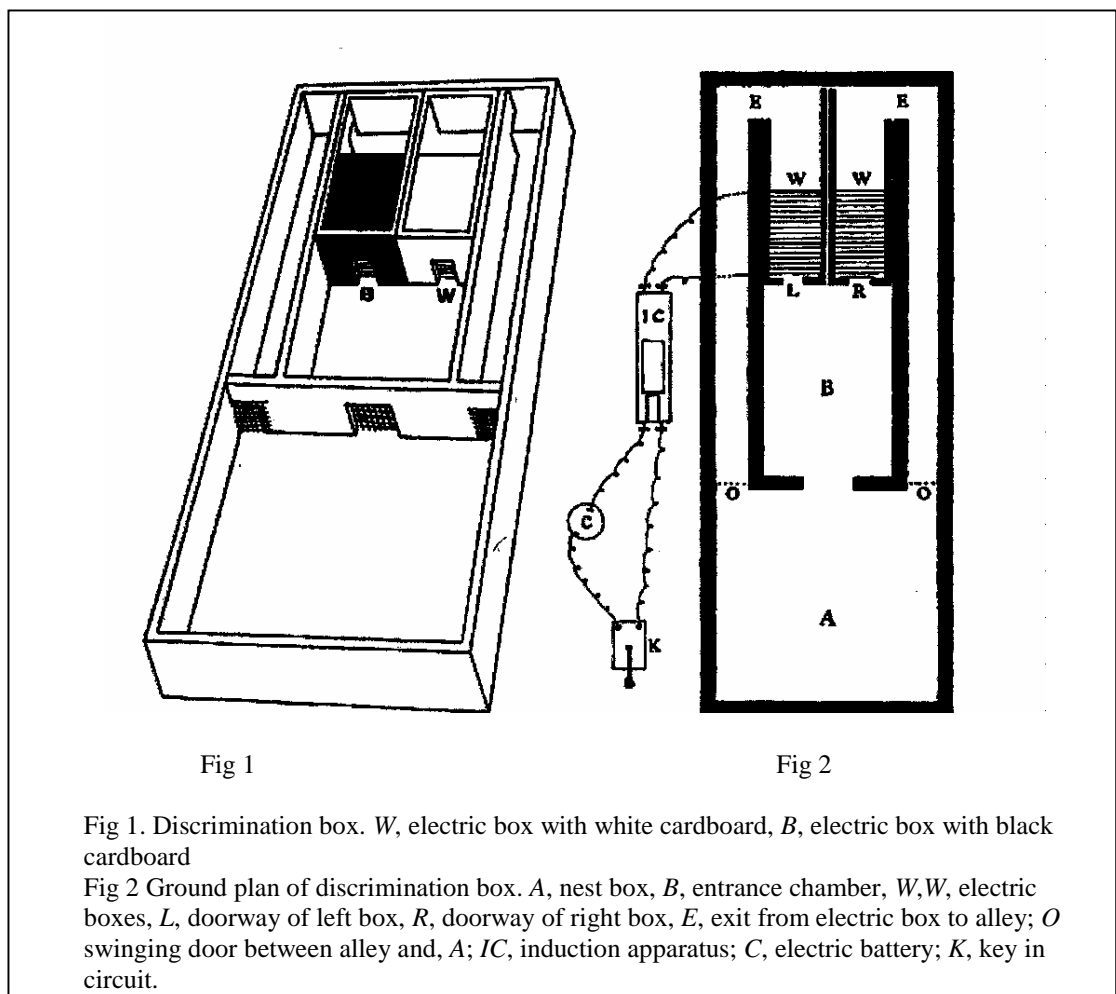
Yerkes and Dodson (1908) studied the relationship between what they referred to as “strength of stimulus” (electric shock in their work) and “rapidity of habit formation”, defined as making the correct choice in a discrimination task, using a particular strain of mice known as dancing mice. As now generally presented these findings are elevated to the status of a law that may relate anything from strength of stimulus through motivation, punishment, or reward, to stress or anxiety as independent variables to any dependent variable from rapidity of habit formation, through learning, problem solving, and memory function to performance; usually without considering the variable of task difficulty and thus ignoring what Yerkes and Dodson regarded as the most important aspect of their results.

### *1.3.1 Yerkes and Dodson: Their Original Paper*

Yerkes and Dodson’s original (1908) paper set out to test an assumed relationship between the rapidity with which a strain of laboratory mice, known as dancing mice (Yerkes, 1908), would acquire a discrimination habit when exposed to various levels of “stimulation”; in this case electric shock. Their apparatus, shown in Figure 1.1(over page) consisted of a “box” containing two smaller boxes through which the subject mouse had to pass to return to the outer area “A” once it had entered the area “B”. Entering the black, or darker, box resulted in an electric shock of variable intensity, the stimulus used to encourage habit acquisition. The white and black boxes were swapped from side to side according to a set schedule to avoid the task becoming a right



versus left discrimination habit acquisition instead of a black versus white discrimination habit acquisition. The authors' expectation was that there would be a monotonic relationship between the strength of stimulus employed and the rapidity with which the subject mice would acquire the desired black versus white discrimination habit. Contrary to their expectations, an intermediate level of stimulus proved to produce the most rapid habit acquisition.



**Figure 1.1 Yerkes and Dodson's original drawing of their experimental set up**

Responding to the inordinate length of time their first set of mice took to acquire the desired discrimination habit the authors decided to speed things up by making the task easier. This they did by increasing the contrast between the black and white boxes. It is interesting to note that they make it quite clear that reducing the time taken to produce

their results was the motivation for changing the experimental conditions. With increased contrast, which they equate with the task of habit acquisition being easier, the originally expected monotonic response was achieved. It was this unexpected contradictory result that prompted them to test whether the easier discrimination was responsible for the difference. Thus, a third series of trials was carried out with the contrast between the boxes reduced below that of the original set. As can be seen from their original graph shown in Figure 1.2, trial three produced the most rapid task acquisition at a lower level of stimulus than the original, intermediate level, task.

The main conclusion reached in the original paper was that “As the difficultness of discrimination is increased the strength of that stimulus which is most favourable to habit-formation approaches the threshold.” (Yerkes & Dodson, 1908, p. 482).

There was no suggestion in this paper that these results and conclusions may be applicable outside the specific parameters of this set of trials, neither was the conclusion stated in the form of a law.

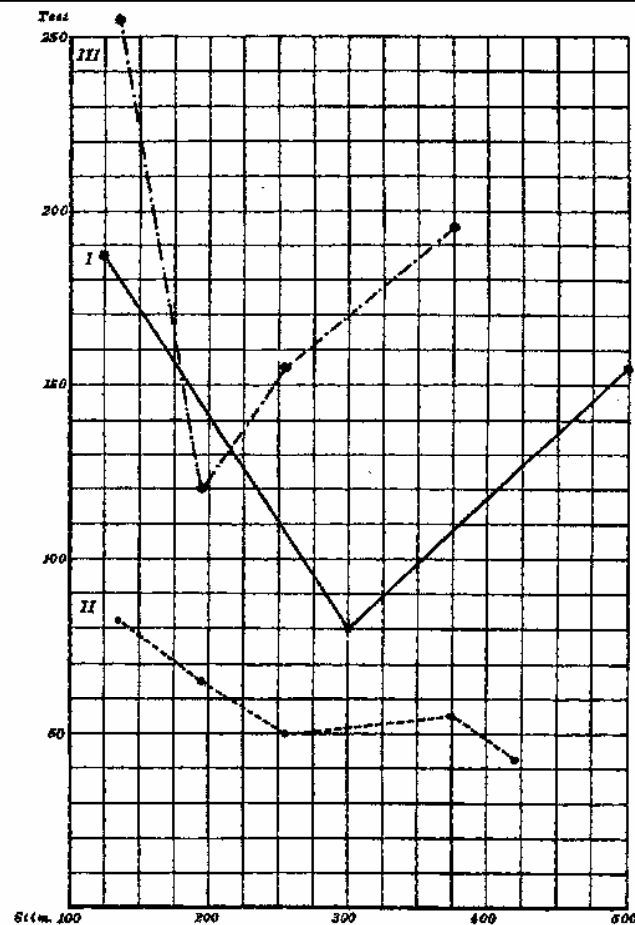


Fig 5. A graphic representation of the relation of strength of electrical stimulus to conditions of visual discrimination and rapidity of learning. Ordinates represent values of electric stimulus in units of stimulation, abscissa represent the number of tests given. Curve I represents the results of the experiments of set I. Each dot indicates a value of stimulus which was used in the experiments. For example, the first dot to the left in curve I signifies that the stimulus whose value was 125 units gave a perfect habit, in the case of the four individuals trained, with 187 tests; the second dot, that for the stimulus value of 300 units 80 tests were necessary; and the third dot that for the stimulus value of 500, 155 tests. Curves II and III similarly represent the results of the experiments of sets II and III, respectively.

**Figure 1.2 Yerkes Dodson's original graph of their trial results**

### 1.3.2 The elevation of Yerkes Dodson to the status of law

For the elevation of the above pattern to the status of a law one must look to Yerkes' later (1909) paper. In this paper Yerkes restated the results from the Yerkes and Dodson (1908) paper and added further experimental trials to examine the

relationships between behaviour modification and age and sex in the dancing mouse.

The crucial quote is as follows

The law which is indicated by these facts may be formulated thus.

As difficultness of visual discrimination increases that strength of electrical stimulus which is most favorable to habit-formation approaches the threshold. The easier the habit the stronger that stimulus which most quickly forces its acquisition; the more difficult the habit the weaker that stimulus which most quickly forces its acquisition. (Yerkes, 1909, p. 253)

One further quote from Yerkes' paper will serve to illustrate the authors' proper cautionary attitude to his findings

I wish to call attention to the probable significance of the law of habit-formation which I have tentatively formulated above. As I have stated it, this law may not hold for other conditions of habit-formation, or for other animals. Only further investigation along lines which Mr. Dodson and I have followed can decide these questions. (p. 254)

It may be appropriate to digress a little at this point to examine the general attitude to laws in psychology in the early twentieth century in comparison to more current attitudes. Teigen (2002) provided an excellent review of psychological laws, and attitudes to them, over this period. One might now expect a law to express a relationship in which there is a causal relationship between independent and dependant variables, which is likely to be deterministic and reliable, and which has stood the test of empirical examination. Early researchers, however, according to Teigen may have had a much more liberal attitude to the use of the term law, and a tendency to "endow all general

principles with the name law” (Teigen, 2002, p. 113) whereas modern psychologists seem much more reluctant to use the term law, preferring to employ such terms as principle, effect, trend, or similar less emphatic propositions. One might question, therefore, how a modern student or researcher encountering a law, whenever that law may have been originally propounded, is likely to interpret, or give weight to, the term law and the relationship proposed by that law. One might also question whether such interpretations are likely to reflect the original authors’ intent. This may be especially relevant in this examination of the Yerkes-Dodson Law given Yerkes’ cautionary treatment compared with today’s relatively uncritical acceptance.

### *1.3.3 Extension of the law to other species*

From the publication of Yerkes’ (1909) paper, other workers used differing animals, tasks, and stimuli in ways which often seemed to confirm the law as originally stated. For example, Cole (1911) employed a light versus dark discrimination task with chicks using contrast variability and shock intensity as the test parameters in a similar manner to Yerkes and Dodson (1908). The author concluded that the results of Yerkes and Dodson for the mouse were confirmed as applying to the chick, despite the fact that, under the difficult discrimination condition, half of the chicks failed to acquire the discrimination habit at all, and the easy discrimination showed a monotonic increase in speed of learning. Only the medium difficulty task showed a clear pattern reminiscent of Yerkes’ and Dodson’s original paper. This is one of the first papers to show a willingness to see a fit with Yerkes’ and Dodson’s results, where the reality seems to be rather more messy than the author’s conclusions would suggest. Dodson (1915) employed kittens in a brightness discrimination task with electric shock as the stimulus and, despite a very small sample, confirmed his original findings of 1908 concerning the

dancing mouse. Neither of these papers refers to a Yerkes Dodson Law; simply to the findings of the 1908 paper. In the following years many papers concerned with incentive and performance in animal models were published without reference to a Yerkes Dodson Law. Hurlock (1930) provided an extensive review of the literature up to the time of publication, including reference to Yerkes' and Dodson's work but does not employ the term law. Crespi (1942) provides a similar, somewhat later review, again referring to Yerkes and Dodson without the term law being employed. Kish (1955) appears to be one of the relatively few authors from the mid twentieth century to refer to the Yerkes Dodson Law as such and it is accurately stated as referring to the idea that "the shock intensity producing optimal discrimination learning decreases as the difficulty of discrimination increases." (p. 35) though a slight slippage in interpretation is already evident in that the term learning is now being employed rather than the original habit acquisition.

#### *1.3.4 Development of the modern Yerkes Dodson Law*

Broadhurst (1957) appears to be the first author to refer very directly to the Yerkes Dodson Law in the title of a paper. The opening paragraph of this paper demonstrates a significant shift and extension in the interpretation of Yerkes and Dodson's original findings. "The Yerkes-Dodson Law which states that the optimum motivation for a learning task decreases with increasing difficulty..." (p. 345). Here there is a movement, from the much more narrow original specification of strength of stimulus and habit-formation, to motivation and learning. In addition, the reference given is to the 1908 paper, which does not express its findings in terms of a law, rather than to Yerkes' (1909) paper where the law is first proposed. Broadhurst proceeds to attempt to confirm the law using the rat as the animal model, a water maze with light

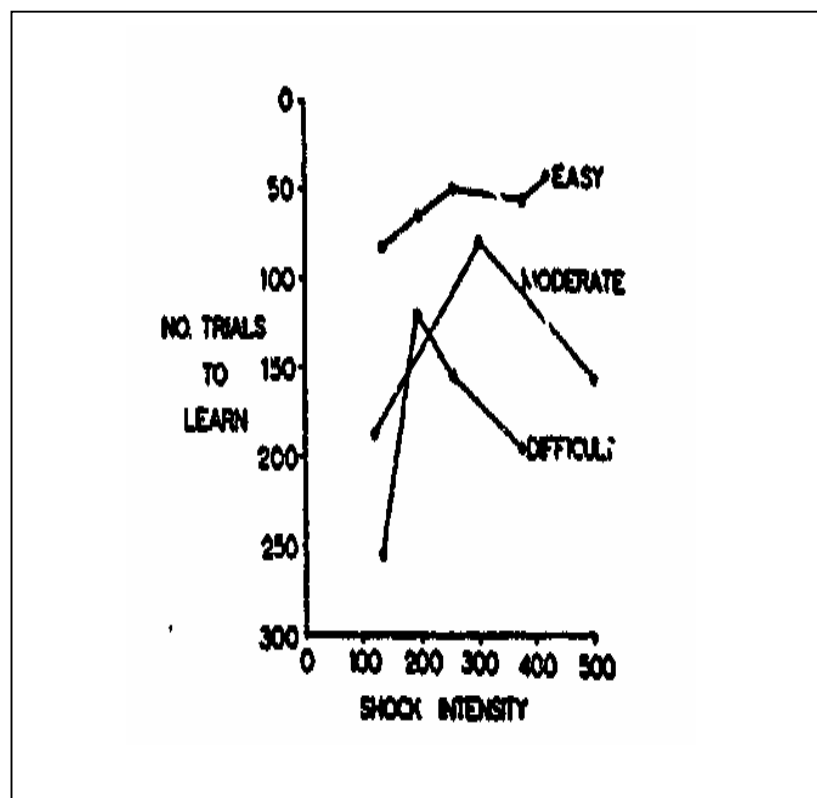
and dark discrimination as the task setting, and air deprivation (being held underwater for various times prior to release) as the motivation. There is an important difference in the criteria on which the effectiveness of the motivation is measured between Yerkes and Dodson's original (1908) work and Broadhurst's (1957) technique. Whereas Yerkes and Dodson defined success as three completely error-free trials for any individual mouse and expressed their results as the number of trials required to achieve this end, Broadhurst, being concerned with learning rather than task acquisition, expressed the results as the number of correct trials in each series of 100 carried out. While Yerkes and Dodson's results showed minima (the fewest number of trials required for habit acquisition), Broadhurst's showed maxima (the greatest number of correct trials per set). Broadhurst employed three levels of task difficulty (varying contrast between the light and dark maze exits) and four levels of motivation (being held for 0, 2, 4, or 8 seconds underwater prior to release to the maze). For the easy task the four-second delay showed the greatest number of correct trials. For the moderate and difficult tasks two-second delays showed the highest number of correct trials. Although the only shift in the maximum was between the easy set and the two other more difficult sets, Broadhurst stated that the Yerkes Dodson Law may be taken as confirmed by these results, despite their being no difference between the moderate and difficult tasks.

Broadhurst's apparent enthusiasm for the Yerkes Dodson Law was most completely expressed in his paper "The interaction of task difficulty and motivation: The Yerkes Dodson Law revived" (Broadhurst, 1959). This would also appear to be a key paper related to both the subsequent increased interest in, and the much wider interpretation of, the law. Despite the possible extravagance of the title Broadhurst (1959) begins with a cautionary footnote

The relationships involved might equally well be described as the Yerkes-Dodson “principle” or “effect”, the writer having no illusions about the circumscribed applicability of most so-called “laws” in psychology. At least until the more obvious limitations of the present “law” have been specified, however, it is proposed to retain the honorific appellation, since it has the sanction of current usage. (p. 321)

Kish (1955) is given as the authority for current usage in the above quote.

Broadhurst (1959) went on to reproduce from their original data Yerkes and Dodson’s graph as shown in Figure 1.3.

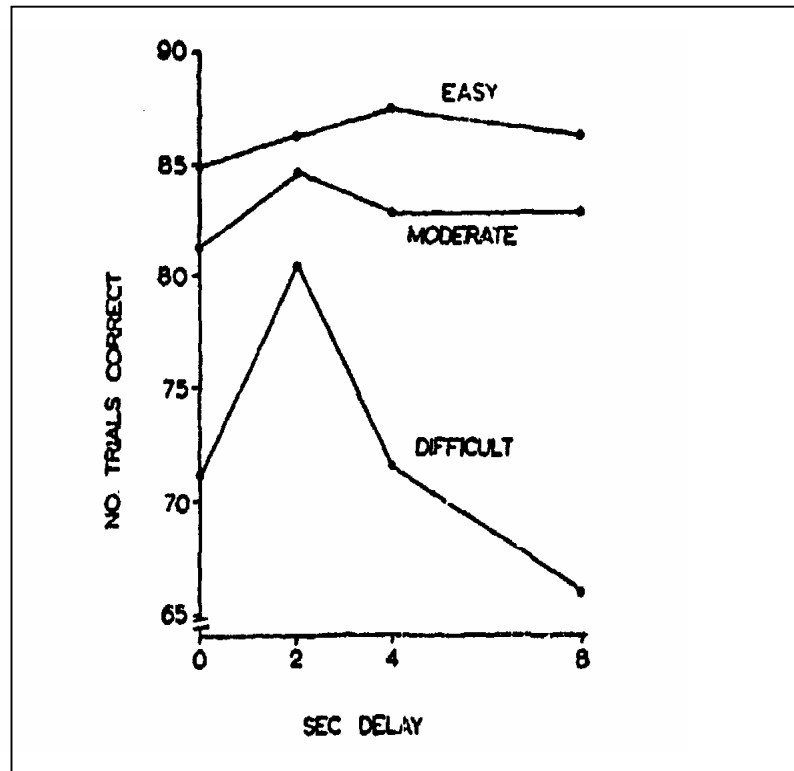


**Figure 1.3 Yerkes Dodson's graph as inverted by Broadhurst**

As can be seen, the figure has been inverted with zero at the top of the abscissa so that the data appear as peaks rather than the troughs shown originally. This is done with no comment or explanation, presumably so that it facilitates comparison with the similar graph from Broadhurst’s 1957 paper which is shown here as Figure 1.4.



Although the law has not as yet been converted to the ubiquitous inverted “U” its illustration has been inverted in order to better fit with a learning paradigm instead of its origin in habit acquisition.



**Figure 1.4 Broadhurst's (1959) original graph of trial results**

Broadhurst (1959) goes on to review the work of a number of earlier authors covering the field of motivation, task difficulty, and performance. The most commonly used motivators or stimuli, depending on your point of view, seem to have been hunger (food reward), electric shock (avoidance reward), or sex, (availability reward) (Hurllock, 1930), with hunger becoming the most widely used in comparative work (Broadhurst, 1959). A curvilinear relationship between motivation intensity and performance had been repeatedly demonstrated in animals according to Broadhurst (Hack, 1933; Iverson & Reuder, 1956; Warden, 1931; Wever, 1932; Young, Falk, & Kappauf, 1958; Young & Shulford, 1954, 1955 as cited in Broadhurst 1959) and in humans (Inglis, 1953; Vaughn & Diserans, 1931 as cited in Broadhurst 1959). A degree

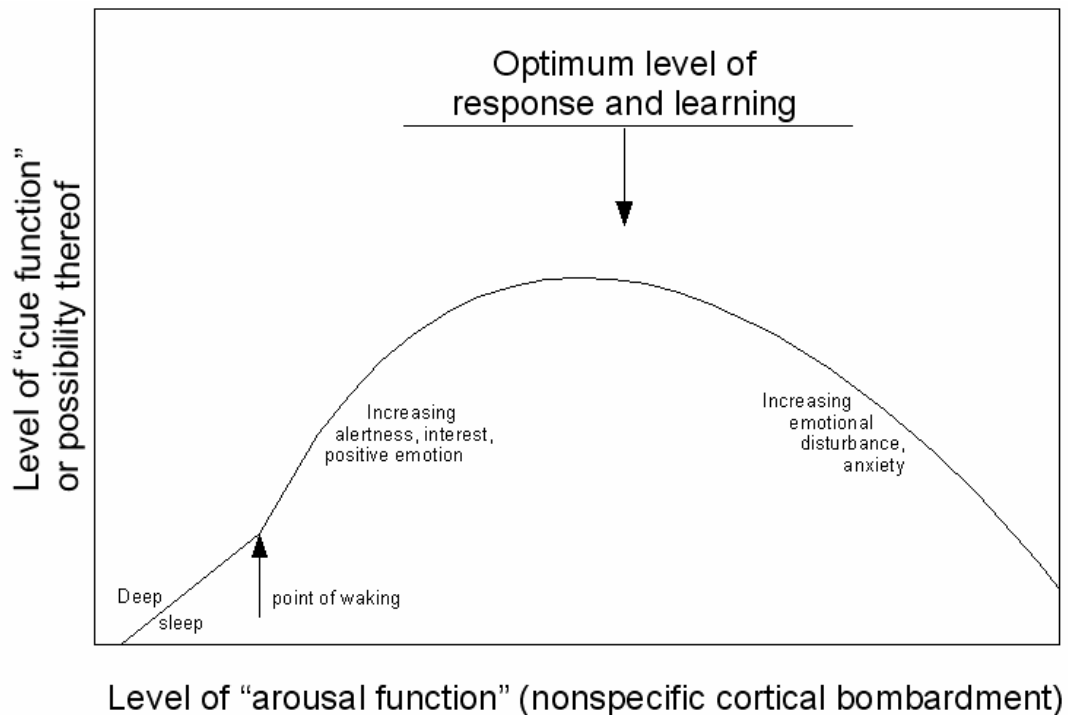
of verbal legerdemain may be apparent here in that relationships which exhibit maxima are referred to as curvilinear, in most cases without sufficient data points being obtained to demonstrate the existence of a curve beyond the assumption that a smooth function of some kind is likely to underlie such a pattern. During the discussion of these various authors' works, the span of the Yerkes Dodson Law is extended from habit acquisition versus strength of stimulus to include motivation v. learning, motivation versus performance, drive versus learning, ego involvement versus performance efficiency, and to the current most common construction, stress versus performance, which is of prime concern here. It should be noted that the authors referred to by Broadhurst do not, in general, refer to the Yerkes Dodson Law in their own writing but support for the law is imputed by Broadhurst from their results. Thus far, the pattern of responses obtained by Yerkes and Dodson (1908) has been extended to cover a far wider variety of cases than envisaged in their paper and has been inverted to suit a learning paradigm but it has not, as yet, been converted to the inverted "U" curve that has become such a familiar expression of this law. For this, as pointed out by Teigen (1994) we must look to Hebb (1955), though, again not specifically to Hebb's own paper but rather to the treatment that Hebb is given by Broadhurst (1959).

Hebb (1955) discussed the concepts of motivation and behaviour in terms of a cue function that guides behaviour and an arousal or vigilance function that is regarded as synonymous with a general drive state (in Hebb's words an engine but not a steering gear), without which the cue function cannot exist. He postulated that as the level of the arousal function, which is considered to be equivalent to a nonspecific cortical bombardment, increases, it will reach an optimum level for the cue function beyond which functional behaviour declines. Hebb used this theoretical construct to explain the

human tendency to seek stimulation up to a point and avoid over-stimulation for example:

When you stop to think of it, it is nothing short of extraordinary what trouble people will go to in order to get into more trouble at the bridge table, or on the golf course, ... This taste for excitement must not be forgotten when we are dealing with human motivation. It appears that, up to a certain point, threat and puzzle have positive motivating value, beyond that point negative value. (p. 251)

Hebb (1955) used the example of people who may freeze with extreme fear and Tyhurst's (1951; as cited in Hebb 1955) study of human behaviour in emergency and disaster situations to illustrate the behavioural evidence for the negative value of stimulation and threat. Most importantly for this paper, Hebb illustrates his ideas with a conceptual graph shown in Figure 1.5 which looks very reminiscent of the illustrations that usually accompany modern expositions of the Yerkes Dodson Law. Two points are important here: Hebb's paper consists of a theoretical exposition not an empirical investigation, and it does not mention the work of Yerkes and Dodson.



**Figure 1.5 Hebb's (1955) original curve**

It is Broadhurst who imputes explanatory value to Hebb's work in relation to the Yerkes Dodson Law, claiming that Hebb "provides a definite physiological rationale for the relationship". Broadhurst (1959) concludes with a prophetic comment,

There are doubtless other applications of the principle of the Yerkes-Dodson Law which are being made, either explicitly or in unawareness of the experimental justification for this expression of the relationship between drive and performance. The two cited above may serve to illustrate the range of utility of this formulation, and this discussion perhaps will stimulate interest in this old, and long-neglected, principle. (p. 335)

This represents quite a shift from the original cautionary footnote at the beginning of Broadhurst's (1959) paper, presumably he considered he had addressed the "obvious limitations of the present law".

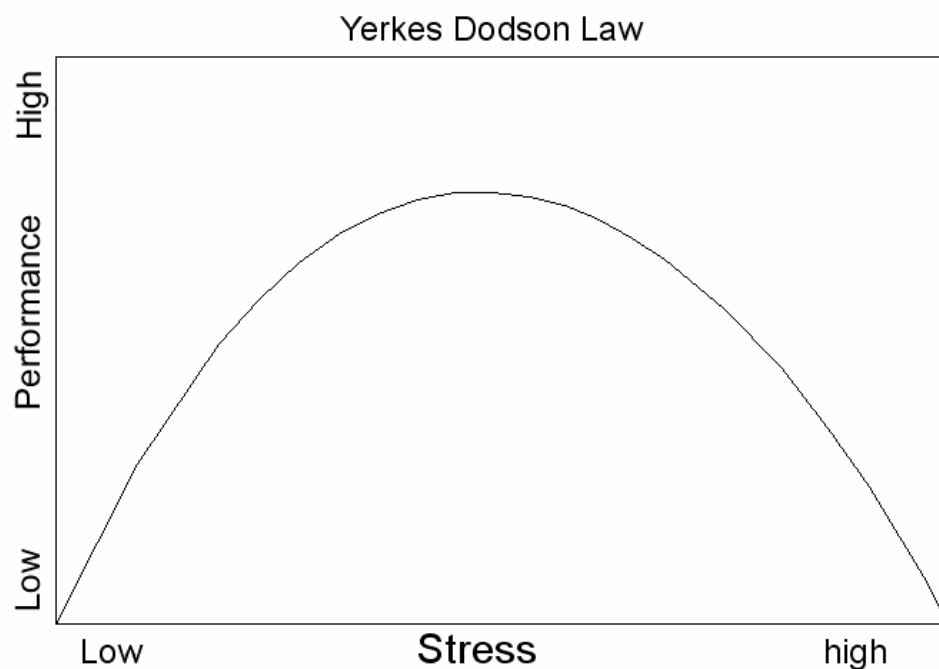
It is interesting to note that references to the Yerkes Dodson Law are absent from dictionaries of Psychology and introductory texts prior to the early 1960s but become increasingly common thereafter, usually giving the law the much wider interpretation it began to acquire with Broadhurst rather than its original narrow definition. After the publication of Broadhurst's (1959) paper, references to the Yerkes Dodson Law begin to multiply although initially, at least, the descriptions of the law agree with Yerkes' (1909) formulation, albeit often with an extended scope, the reference is universally to Yerkes and Dodson (1908). Stabler and Dyal (1963) found that low-anxiety subjects performed better than high-anxiety subjects when task difficulty was highest, but that as the task became easier with practice the high-anxiety subjects improved more than the low-anxiety subjects. They held these findings to be in accord with the Yerkes Dodson Law, that the optimal motivation for a learning task decreases with increasing difficulty. This interpretation of Yerkes and Dodson is in accord with the original formulation that gives primacy to the difficulty variable rather than to the existence of a performance maximum but it does, as is henceforth typical, refer to motivation and learning while referencing a paper that mentions neither. Wilson (1965) referred to "the well known Yerkes Dodson Law", which would appear to indicate that, subsequent to 1959, Broadhurst's desired revival of the law was progressing well. This (Wilson, 1965) is also one of the first papers to specifically mention stress in relation to performance, "Apparently a mild increase in stress improved the intellectual functioning of this group." (p. 29) The stress in question here is achieved by adding an element of competition to the syllogistic reasoning task employed. That this competition element represents stress seems to be entirely an assumption on the part of the author, an interpretation that would be at odds with Hebb's (1955) earlier reasoning. Nevertheless, we now have stress explicitly linked

with possible increase in intellectual performance and linked with the Yerkes Dodson Law. Wallach (1965) examined the relationships between intelligence, anxiety, and creativity in children and found that creativity was highest in the moderately anxious subjects and stated that this was “suggestive of a Yerkes Dodson function” (p. 365) and that “The allusion to the Yerkes Dodson law is made since creativity is found to be maximal in the presence of an intermediate level of anxiety.” (p. 365). What is interesting in this paper (Wallach, 1965) is that no reference is given for the Yerkes Dodson Law. One might ask whether the law had by this time already become so universally accepted that it no more needed a reference than might the law of gravity. Anderson (1976) takes this tendency to an extreme by stating “Performance under stress, then, follows an inverted U shaped function. This type of relationship between stress and performance, called the Yerkes-Dodson Law, has been demonstrated in a number of laboratory studies under different types of experimental conditions” (p. 30) without giving any references to support this statement or to the Yerkes Dodson Law itself. Subsequent to this, of course, any other author wishing to make similar statements can reference Anderson’s (1976) paper. Mills (1985) continued the practice stating: “Response to stimulation of arousal has been described as the Yerkes-Dodson inverted U, implying that increased drive of the arousal mechanism leads first to an increase and then to a decrease in mental efficiency” (p. 231) also with no reference for the Yerkes Dodson Law while extending its scope to cover mental efficiency in general.

It should also be noted that since the 1960s it has become far less common for references to the Yerkes Dodson Law to refer to task difficulty as an important variable. The aspect that seems to have been most important to the original authors has been progressively de-emphasised until it no longer forms part of the law, which now seems to consist primarily of the idea that there is a curvilinear relationship between stress or

anxiety and performance that is usually expressed graphically in a manner reminiscent of Hebb (1955) rather than Yerkes and Dodson (1908).

Thus it would appear to be primarily through the influence of Broadhurst that the Yerkes Dodson Law began its ascent to practical universality through inversion, extension to a range of inputs and outputs, and linking with Hebb's beguiling curve. The ensuing contraction, with the ultimate removal of difficulty as a variable, seems to have happened gradually through a process of simplification and, perhaps, increasing identification with the two dimensional Hebb curve. So we arrive at the Yerkes Dodson Law inverted "U" diagram as it is usually known and illustrated today (Figure 1.6).



**Figure 1.6 Yerkes Dodson Law inverted "U" diagram**

#### *1.4 Selye's definitions of eustress*

The previous section of this thesis has investigated the path through which the Yerkes Dodson Law (Yerkes, 1909) became identified with the idea that there was an

optimum amount of stress for peak performance. This optimum amount of stress seems to have become regarded as eustress but in Selye's work "good stress" or eustress depended not on the amount of stimulus, as suggested by current interpretations of the Yerkes Dodson Law, but primarily on how that stressor was interpreted by the individual experiencing it and how they chose to react to it (Selye, 1956, 1964, 1987). In a consistent manner, Harris (1970) equated eustress with pleasurable reactions to stressors and Edwards and Cooper (1988) defined eustress as a positive discrepancy between perceptions and desires (provided that the discrepancy is salient to the individual). The point these authors hold in common is that eustress is primarily a result of positive perception of the stressors, and that distress, therefore, is a result of negative perception of the stressors. Whether a particular stressor represents eustress or distress is determined not only by the individual's perception of the amount of demand it represents, but also by their perception of its other characteristics such as its source, timing, the degree to which they have control over it, and the degree to which they consider it desirable. The study by Cavanaugh, Boswell, and Roehling (2000) would appear to support this concept. Cavanaugh et al. (2000) differentiated self-report stress into challenge stress and hindrance stress. Challenge stress was defined as "... self reported work stress associated with challenging job demands." (p. 66) and likened to eustress. Hindrance stress was defined as "... job demands or work circumstances that involve excessive or undesirable constraints that interfere with or hinder an individual's ability to achieve valued goals" (p. 67) and likened to distress. This study showed support for the proposition that self-report stress shows a different relationship to work outcomes, such as job satisfaction and job search, depending on whether the stressor represents challenge (eustress) or hindrance (distress). This again is consistent with the



findings of Kanner et al. (1981) with respect to the “distressful” nature of hassles compared to the possibly eustressful nature of uplifts in daily life.

### *1.5 Stress: Summary and terminology used in this thesis*

Stress may still be, as Selye originally asserted, an inescapable concomitant of living, but as distress, it also appears to harbour the potential for significant harm to those who experience it. It seems essential, therefore, that we attempt to understand it and to ameliorate its negative effects to the greatest extent that we can. The neurophysiological work of McEwen (2000) which has begun to recharacterise stress in terms of a more narrow view of homeostasis under the name allostatic load, may lead to new appreciations of the physiological and neuropsychological basis for the physical manifestations of what has been known as stress. In the meantime, the field remains as broad, as diverse, and as confusing as ever. For the sake of terminological consistency in this study, the term *stressor* will be used to denote environmental variables and the term *stress* will be used to denote their resulting effects or influences in individuals throughout, converting where necessary the various other terms used by authors whose work is referenced herein. For consistency with the majority of authors, and for ease of expression, stress will also be used to refer to the overall field of investigation.

### *1.6 Occupational Stress*

There are currently a number of models or theories of stress, in particular occupational stress. Each of these theories tends to emphasise both different sources and interactional models for the induction of stress, and different outcome measures for the management of stressors and stress. These models and theories are influenced by the different disciplines from which they originate, contributing, as mentioned previously,

to a continuing confusion in the use of terminology in the field of occupational stress research.

## *1.7 Occupational Stress Theories*

Several theories or models of occupational stress have been published including the Person-Environment fit (P-E fit) theory (Edwards, Caplan, & Van Harrison, 1998), cybernetic theory (Cummings & Cooper, 1998), control theory (Spector, 1998), the perceptual interface model (Le Fevre, Kolt, & Matheny, 2006; Le Fevre et al., 2003) and burnout (Maslach, 1982a, 1998). These theories or models will now be examined in more detail.

### *1.7.1 Person-Environment fit theory.*

Person environment fit (P-E fit) theory is probably one of the best known and most widely accepted theories of occupational stress. In P-E fit theory, stress is not defined in terms of either the individual or the environment, but rather in terms of the degree to which there is ‘misfit’ between the two (Edwards et al., 1998). P-E fit theory incorporates three basic distinctions. The first and most basic is that between the person, their abilities and needs, and their environment, its demands, and that which it supplies to them. The second distinction is that between the subjective and objective representations of the person and their environment; the subjective representation being the person’s perceptions of themselves and their environment, and the objective representation being the person and environment as they actually exist. As shown by Harrison (1978), the objective and subjective representations are causally related through the constructs of ‘contact with reality’ and ‘accuracy of self-assessment’. Later work (Harrison, 1985) suggested that objective P-E fit had little relationship to stress

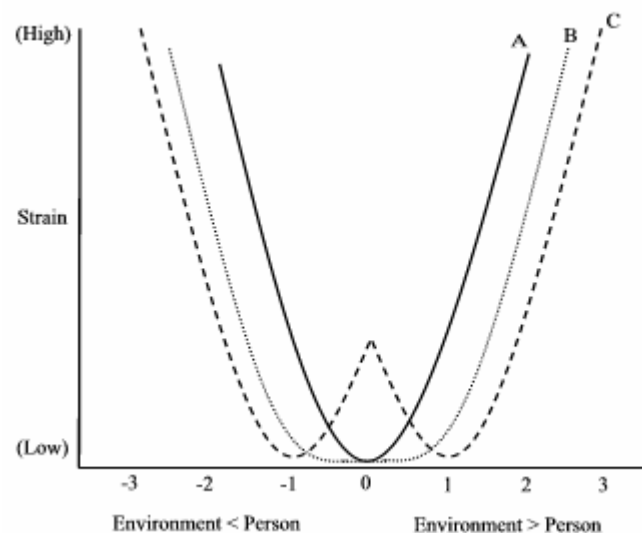
unless the individual had clearly accurate self assessment and good contact with reality, thus yielding primacy to subjective fit as the main determinant of stressors and resultant stress. Accuracy in self-assessment is always liable to be distorted, however, by limitations on the human ability to perceive and process information (March & Simon, 1958), and by those organisational structures that prevent individuals having access to objective information (Harrison, 1978).

The third distinction in P-E fit theory incorporates two types of P-E fit, (or misfit) and may be considered a subset of the first major distinction. The first type of fit or misfit is that between the demands the environment places on the individual in terms of the job requirements, role, and group norms, and their abilities to fulfil those demands in terms of their skill, energy, training, and time perceptions. The second is the fit or misfit between the needs of the individual in terms of their physiological and psychological requirements (Herzberg & Mausner, 1959; Maslow, 1943) and the ability of the environment to supply those needs in terms of extrinsic rewards such as pay and conditions and intrinsic reward such as involvement and ability to achieve (Herzberg & Mausner, 1959). In P-E fit theory, it is when there is mismatch between the person and their environment, in any of the above constructs, that stress results.

The P-E fit theory leads to three basic relationships between stressors and stress. In terms of the demand-ability dichotomy, as demand exceeds ability stress is likely to increase. As demand reduces below the individual's ability to deliver, stress may decrease or increase. This depends on whether or not environmental demands go down to a level that causes boredom and inhibits the individual's ability to fulfil high-level needs (Maslow, 1943). In terms of the needs-supplies dichotomy, stress is likely to be at a low level where the environmental supply exceeds the individual's needs. Conversely stress tends to increase as the individual's needs progressively fail to be met, either

because their needs are increasing or because their environment's ability to supply is reducing. The final relationship is a combination of the demand-ability and needs-supplies constructs, in that there appears to be an area of minimal strain in which the individual's needs are met and their abilities are not over-stretched. Outside this area stress increases. This "cumulative difference" model has been hypothesised by Kulka (1979) to give rise to U shaped curves as shown in Figure 1.7.

The cumulative difference model indicates that P-E misfit is a cumulative and continuous process so that stress increases as P-E misfit increases.



**Figure 1.7 Cumulative difference curves (Kulka, 1979).** This is an illustrative model only showing “strain” on the vertical axis and degree of “fit” on the horizontal axis. ‘0’ represents exact fit. Negative values represent the degree to which their environment fails to meet the individual’s needs. Positive values represent the degree to which the individual is unable to meet their environmental demands. ‘A’ shows strain progressively increasing outside an area of ideal P-E fit. ‘B’ suggests that the area of minimal strain may extend over a larger range than ‘A’ incorporating a tolerance of the individual for some degree of P-E misfit. ‘C’ suggests that perfect environmental fit may actually increase strain due to stagnation and lack of challenge.

P-E fit theory suggests two outcome sets, one resulting in physiological stress or psychological stress, or both, the other resulting in either coping or defence. The stresses of the first outcome set are likely to be expressed as physical symptoms typically associated with stress (e.g., physiological signs of raised blood pressure, raised serum cholesterol, lowered immunity), and psychological symptoms (e.g., sleep disturbances, anxiety, panic attacks, dysphoria, restlessness) (Edwards et al., 1998). These stresses may result in behavioural changes of the kind frequently monitored in stress management interventions such as increased absenteeism (Murphy & Sorenson, 1988), insurance claims (Heeringa, 1996), and use of health-care services (Code & Langan-Fox, 2001). Good P-E fit may, however, confer positive health benefits (Edwards & Cooper, 1988; Harrison, 1978, 1985).

The second outcome set of P-E fit theory consists of the individual's potential reactions to perceived environmental misfit or stress, which can be characterised as either coping or defence. Coping reactions consist of actions taken to reduce the misfit by altering either the person or the environment, (e.g., training to increase skills or negotiating some change in the objective environment itself). Defence reactions consist of cognitive restructuring of the subjective person or environment, or both, (e.g. repression, projection, denial, French, Rogers, & Cobb, 1974)). Coping and defence are both potentially adaptive, neither being necessarily better or more effective than the other (Edwards et al., 1998). P-E fit theory has been criticised for its lack of any explicit treatment of the temporal nature of stress. Stress takes time to develop.

### *1.7.2 Cybernetic theory.*

In the cybernetic theory of occupational stress (Cummings & Cooper, 1998) the concepts of cybernetics or system control are used to emphasise the temporal

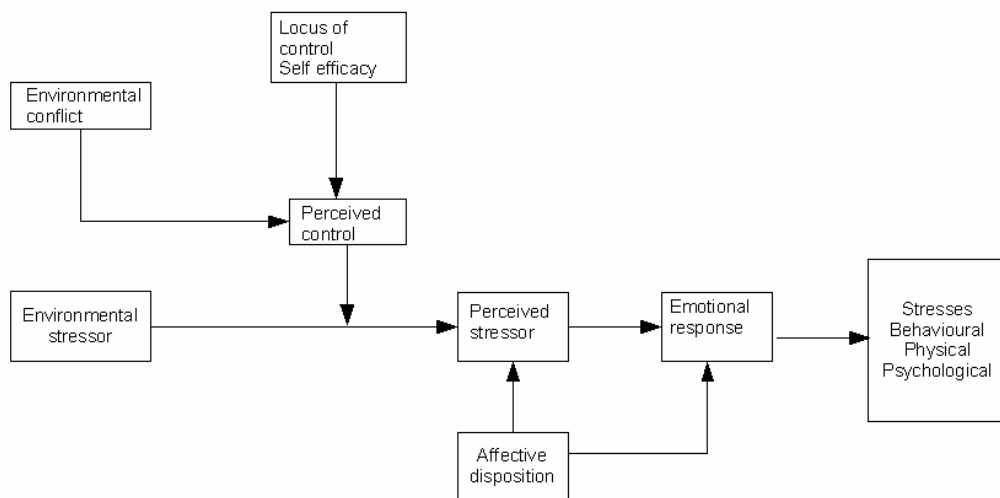
dimensions of the development, response, and possible resolution of occupational stress. Cybernetic theory deals with the response of systems to information using feedback (Ashby, 1954). It is based on the idea that systems, in this case individuals, seek to maintain some equilibrium state, and will act to re-establish equilibrium when some external force disturbs it. This basic idea is hardly new and is reflected in Cannon's (1914, 1932) early work on physiological responses to threat, more recently referred to as the fight or flight response, in the general adaptation syndrome of Selye (1956, 1964, 1983) and more recently in the concept of allostatic load (McEwen, 2000).

Cybernetic theory has the potential to add to an understanding of occupational stress with its strong emphasis on the temporal path of stress development. Its inclusion of the idea of perceived threat as a source of stress, as well as the more common assessments of the objective environment and subjective assessments of current situations used in P-E fit models (Edwards et al., 1998), also expands the definition of stress. When cybernetic principles are applied to living systems they can be used to illustrate how organisms seek to maintain homeostasis against conditions that tend to disrupt it (Miller, 1965). As Cannon (1932) showed, such considerations are relevant to individuals' reactions to stress, although that term is not mentioned in his work. Mc Ewen (2000) took this further suggesting that many physiological parameters vary over relatively wide ranges in order to hold steady those relatively few parameters that really do require to be held steady.

Cybernetic theory can also be applied to organisational systems themselves. This has implications for occupational stress measurement and management as it suggests that occupational stress can act on the organisational environment itself by influencing the forces that constitute the organisation's social structure (Lewin, 1951).

### 1.7.3 Control theory.

Control theory (Spector, 1998) is based around the idea that the degree to which the individual perceives they have control over the variables that have potential to represent stressors in their environment affects the likelihood that they will experience them as stressors or exhibit stress. This is illustrated in Figure 1.8.



**Figure 1.8 Control Theory (Spector, 1998).** Locus of control and self-efficacy are shown as moderating the perception of control which, with the individual's affective disposition, influences their perception of the stressor. Affective disposition, through the experienced emotional response, and perceived control then both affect the stress experienced by the individual.

Control may be defined as the ability of an individual to make choices between two or more alternatives, the choices being behavioural rather than cognitive (Ganster & Fusilier, 1989). Control in the workplace may range from effective complete autonomy, and personal control over schedule and workload, to complete servitude, and no personal control over schedule or workload. An intermediate position exists outside the above continuum where there is a degree of autonomy over aspects of the organisation's global schedule and workload, but only partial control over the personal situation.

As can be seen in Figure 1.8, perception is an important variable. Locus of control and self-efficacy (Bandura, 1982) may have major impact on perceived stress and resultant strain. The model posits control as an intervening or moderating variable although empirical support for this stance is weak (Dollard, Winefield, Winefield, & de Jonge, 2000; Spector, 1998).

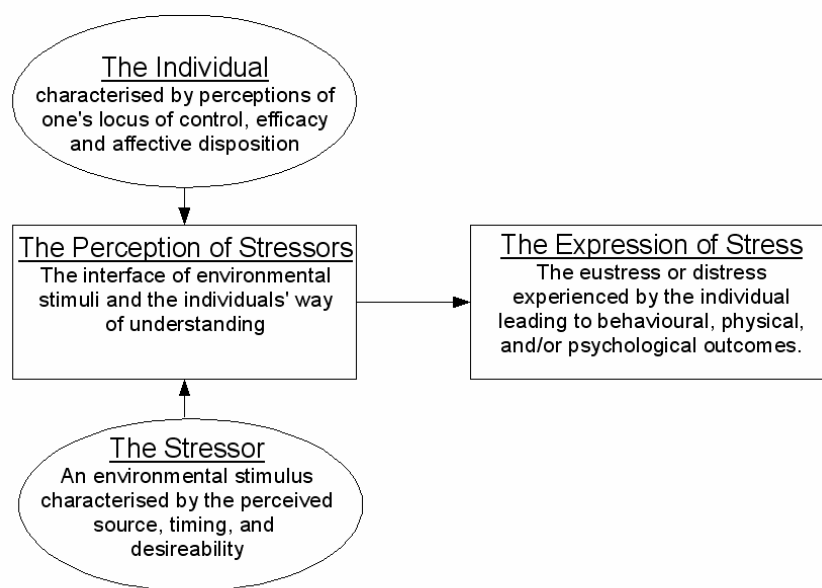
#### *1.7.4 The Perceptual Interface Model*

Le Fevre et al. (2003) developed a set of three tenets that reflect and extend the logic established earlier by Selye. First, stress is the response to stressors in the environment, and stress, by definition is either eustress or distress or a combination of the two. Second, in addition to the amount of stress they cause, stressors can be identified by a series of characteristics including the timing of the stressor, the source of the stressor, the perceived control over the stressor, and the perceived desirability of the stressor. Third, whether stressors result in eustress or distress depends on the individual's interpretation. This last point has been previously expressed by Lazarus (1974). As Lazarus pointed out the stress relationship "is one in which demands tax or exceed the person's resources" (p. 3, 1974). This relationship echoes the PE-fit model, but it is also proposed that it is in the transaction or encounter, and the individual's appraisal of that transaction or encounter, that stress may result. Indeed, in Lazarus' work the transaction, and the individuals' cognitive appraisal of that transaction as potentially harmful, threatening, or challenging, is central to the stress process.

In their work, Le Fevre et al. (2003) examined the relationship of the three tenets to three primary theories of occupational stress: P-E fit (Edwards et al., 1998; French et al., 1974), Cybernetic Theory (Cummings & Cooper, 1998), and Control Theory (Spector, 1998). According to Le Fevre et al. (2003), Control Theory (Spector, 1998) is



the only one of the three theories to specifically address the individual's interpretation of the stressor as a major moderator of their stress. Although Control Theory makes no distinction between distress and eustress as defined by Selye (1987), it could be modified to take more specific account of the differentiation between eustress and distress. Such a revised model was proposed by Le Fevre et al. (2003) and appears in Figure 1.9.



**Figure 1.9 The Perceptual Interface Model (Le Fevre et al., 2003)** The Perceptual Interface Model (PIM) of stress brings into focus the differentiation between distress and eustress.

The preceding models or theories of stress have in common the concept that stress is, in some way, a result of the relationships or interactions between the individual and their environment. While P-E Fit (Edwards et al., 1998), Control Theory (Spector, 1998), and the Perceptual Interface Model (PIM) (Le Fevre et al., 2003), take account of the individuals' perception of the relationships or interactions, Cybernetic Theory (Cummings & Cooper, 1998) takes less account of perceptions but emphasises the

temporal nature of the development of stress. The idea of temporality in the development of adverse reactions to prolonged stressor exposure is probably best expressed in the concept of Burnout (Maslach, 1982a).

#### *1.7.5 Burnout.*

Burnout arose as a concept relating primarily to the so-called ‘caring professions’ before it came to be more generally applied in occupational settings (Maslach, 1998). Burnout has been defined as “. . . a prolonged response to chronic interpersonal stressors on the job.” (Maslach, 1998, p 68). It has three main dimensions; an overwhelming exhaustion, feelings of cynicism and detachment, and a sense of ineffectiveness and failure (Maslach, 1982a, 1982b). A central feature of burnout that distinguishes it from the other main theories relating to occupational stress is its concentration on the interpersonal dimension of stress. Its three main diagnostic indicators of emotional exhaustion, depersonalisation, and reduced personal accomplishment, and its temporal aspect (i.e., it is regarded as a prolonged response to exposure to interpersonal stress), are also distinguishing features. Significant overlap is apparent, however, between burnout and occupational stress models such as P-E fit (Edwards et al., 1998).

The burnout construct has six areas of possible mismatch between person and environment, although a greater emphasis may be placed on the effect of long-term mismatch than is considered the case in P-E fit theory. The six areas are similar. For example, work overload, lack of control, insufficient reward, and value conflict are all constructs found in other occupational stress models, while breakdown of community, and absence of fairness are similar to aspects of Herzberg’s (1959) motivational model. Burnout is not strictly regarded as a stress model or theory but rather as a measure of the

potential result of the long-term experience of stress. As such, although a significant area of current research in occupational stress, and possibly relevant due to its inference of an interpretational component in the development of burnout, this concept was excluded from consideration in the empirical part of this study.

This chapter has reviewed the concepts of stress, eustress, and distress and suggested that eustress has become synonymous with an optimal amount of stress through misinterpretation of the work of Yerkes and Dodson (1908). The models or theories of occupational stress discussed above, with the concept of burnout also serve to provide a brief summary of some of the current thinking regarding the nature of stress. In particular the PE-fit model with its emphasis on the relationship between the individual and their environment, the demand control model, with its emphasis on perceptions of control as mediators in the stress process, and the perceptual interface model which emphasises the individuals' perception as a prime determinant of the relationship between stressor and stress, form the conceptual basis on which the empirical work in this thesis was designed. Though some (Doublet, 2000) express the opinion that stress as a concept has no real existence and cannot be defined it would, at this time, be hard to deny the existence of some complex that is generally, and multifariously, identified by the term stress. The next section of this thesis addresses the more narrow area of occupational stress.

## 2 Chapter Two: Occupational Stress, Management, and Performance

Stress manifested in the work environment is usually treated under the rubric of occupational stress, though there is acknowledgment that the source or sources of stress (the stressors) may be occupational, or from the wider social context, or a combination of these. Leiter (1996) has investigated this “spill-over” effect wherein exposure to stressors in the workplace spills over into the individual’s private life, and also the reverse situation where stressors from one’s social setting are manifest as occupational stress in the workplace. Occupational stress management interventions usually address stress and stressors that appear to be related primarily to the workplace setting. Some tertiary approaches, such as Employee Assistance Programs (EAPs), which often include the provision of individual confidential counselling, may also address individuals’ stress in a wider context (Cooper, Dewe, & O’Driscoll, 2003).

Occupational stress management interventions (SMIs) might be defined as “any purposeful action taken to reduce or alleviate the stress experienced by organisational citizens in the execution of their work functions.” (Le Fevre et al., 2006, p. 548). This broad definition includes only those managerial actions that have as their prime or sole purpose the management or reduction of stress in organisational members. It excludes, therefore, all those management actions (or inactions) whose primary purpose is other than overt stress management, but which may nevertheless impact on stress in the organisation (Le Fevre et al., 2006).

Stress, and its management, has become of major interest for academics, industry practitioners, and at the governmental level. As Cox, Randall, and Griffiths (2002) have said “... work-related stress is currently one of the greatest challenges to

the health of working people and to the healthiness of their work organisations.”(p. iii).

This may be due to its potential cost to individuals, organisations, and even nations in terms of individuals’ health and wellbeing and organisational and national productivity. These costs of occupational stress have been variously and frequently estimated. The International Labour Organisation (ILO) showed that inefficiencies arising from occupational stress may cost 10% of a country’s GDP (Midgley, 1997). Cartwright and Boyes (2000) estimated that, in the United Kingdom, over 60% of all workplace absences were due to stress. Atkinson (2000b) estimated the annual national cost of stress to be between 200 and 300 billion dollars in the United States, while Britain’s Health and Safety Executive (HSE, 2006) estimated that 12.8 million working days are reported lost due to stress in Britain per year. This reported British stress-related absentee rate may have tripled between HSE surveys in 1995 and 2001/2002 but since appears to have remained steady, though period-to-period comparisons are difficult due to variations in methodology and the reliance on simple self-report measures.

Australia’s National Occupational Health and Safety Commission estimated that the national cost of stress was about AU\$105.5 million in 2000-2001 and during that time there were 6,063 worker compensation claims for “mental stress” (Caulfield, Chang, Dollard & Elshaug, 2004). Béjean and Sultan-Taïeb (2005) estimated that between 1.3% and 1.7% of the working population of France were affected by illnesses attributable to stress in the year 2000, and that between 2,300 and 2,600 of these people died as a result of those illnesses annually. By any of these measures it would appear that efforts to reduce the impact of stress on organisations and the individuals who labour within them should pay dividends at both the organisational and individual level.

## *2.1 Classification of stress management interventions*

Stress management interventions can be classified as primary (i.e., those that aim to deal with the source(s) of stress in the workplace (stressors), and focus at the organisational, or group level), secondary (i.e., those that focus at the level of the individual employee), or tertiary (i.e., those that aim to address or ameliorate already existing stress signs and symptoms in individual organisational members) (Quick, Quick, Nelson, & Hurrell, 1997). Primary interventions, may have a job structure focus including such aspects as task, role, interpersonal and physical demands (Quick, Quick, & Nelson, 1998), job rotation or job design (Hackman & Oldham, 1976, 1980), or organisational restructuring, and organisational development (OD) interventions (De Frank & Cooper, 1987; van der Hek & Plomp, 1997; van der Klink et al., 2001). Primary interventions are relatively long, usually running for over 12 months in the organisation. It is noteworthy that nontreatment control groups are usually lacking in reported trials of such interventions (van der Hek & Plomp, 1997; van der Klink et al., 2001) though Randall, Griffiths, and Cox (2005) used adapted study designs to help overcome this limitation. By comparison, secondary interventions tend to be relatively brief and can be classified into three main types. The first, somatic, includes relaxation methods such as progressive relaxation (Jacobson, 1938), bio-feedback (e.g., Fentress, Masek, Mehegan, & Benson, 1986), and breathing techniques. The second, cognitive, includes mindfulness techniques (Kutz, Boreysenko, & Benson, 1985), affirmations, and thought stopping. The third type of secondary intervention, multimodal, combines aspects of both somatic and cognitive technique such as Benson's (1976) relaxation response, transcendental meditation, and comprehensive programs that mix somatic and cognitive methods (Benson, 1976; Benson, Kotch, Crassweller, & Greenwood, 1977). Tertiary intervention has the reduction of organisational and individual costs, due to

manifest health problems, as its main aim. At the individual level this may often be represented by the provision of medical or psychiatric care, counselling, or employee assistance programs (De Frank & Cooper, 1987; Quick et al., 1997; van der Hek & Plomp, 1997). The typology of SMIs as primary, secondary, or tertiary was developed as a framework for preventive stress management based on the public health model of prevention wherein early (primary) intervention to reduce or eliminate health risk factors where possible is considered the ideal approach (Quick et al., 1997).

### *2.1.1 Primary Stress Management Interventions*

Primary SMIs are usually regarded as being proactive (i.e., attempting to remove or alleviate the sources of occupational stress) rather than reactive, (i.e., attempting to relieve or reduce the resulting strain manifested in individuals) (Cooper, Dewe, & O'Driscoll, 2001). Primary SMIs therefore concern themselves with eliciting which aspects of the job and the wider organisational context are real or potential stressors, and making adjustments to the way jobs are performed and structured, their physical environment, formal reporting structure, and policies (Cox et al., 2002). Approaches like these may also perhaps attempt to change or modify the organisational culture. By their nature, primary SMIs tend to be long-term efforts, though there are some exceptions as in the recent work of Randall et al. (2005).

Though primary SMIs are sometimes suggested as more appropriate and desirable forms of intervention than secondary SMIs (Cooper et al., 2001), there is surprisingly little empirical evidence to support this contention. Jones (1988) reported a one-year primary SMI carried out in a medical setting with the aim of reducing medical error and the associated claims. Relative to a matched control group, the client system had significantly reduced claims over the one-year follow-up period. Other reported

primary SMIs (e.g., Golembiewski, Hilles, & Daly, 1987) used no control group. Even Jones et al.'s (1988) work cannot be considered to be a pure primary SMI as participants were also trained in relaxation, thus confounding primary and secondary interventions. Primary, organisation-based interventions are, however, suggested as the first approach for preventive stress management in organisations, while individual-based approaches are regarded as complementary only (Quick et al., 1997). One of the difficulties here may lie in the way stress in the organisation and changes in that stress are measured. Work carried out for the UK Health and Safety Executive (HSE) may help clarify this as a standards-based approach to occupational stress assessment (which includes the use of standardised employee survey instruments) has been produced as part of a development project (Cousins et al., 2004). Randall et al. (2005) recently reported two brief organisation-based interventions where simple changes were made to the authority or resourcing available to participants. Using an adapted study design in which participants were assessed on the degree to which they were exposed to the changes rather than starting with specific test and control cohorts, positive responses to the interventions were shown at the individual level using the exhaustion scale of the General Well-Being Questionnaire (Cox & Griffiths, 1995; Cox, Thirlaway, Gotts, & Cox, 1983). This approach may help to reduce the current lack of evidence for the effectiveness of job-focussed organisational interventions. In an extended evaluation of stress control interventions in hospital staff, however, although improvements were noted in almost all of the specific managerial and organisational areas addressed by interventions (i.e., inadequate information, lack of praise and recognition, lack of time, etc.), more general measures of group stress such as feelings of being “worn out” or the experience of musculoskeletal pain showed little change, or in some cases were increased (Cox et al., 2002). As van der Hek and Plomp (1997) suggested, assessment



of the separate subcomponents of SMIs to find out which parts are effective should be a focus for research on stress.

### *2.1.2 Secondary Stress Management Interventions*

As discussed previously, secondary SMIs are focussed at the level of the individual working within the organisation and are commonly classified as being primarily cognitive, somatic, or multimodal in nature. Secondary SMIs are sometimes criticised as placing the onus for managing stress on individuals and so, by implication, releasing management from any responsibility for ensuring that those aspects of the organisation within the ambit of their control are structured to reduce their distressful impacts (Cooper et al., 2001). This stance has a certain moral appeal and has been used to justify recommendations that primary SMIs should be the first choice in managing organisational stress (New Zealand Government, 2003). Empirical evidence, however, suggests that secondary SMIs have a far better record for demonstrating positive effects (van der Klink et al., 2001).

Secondary SMIs are highly variable, ranging from short one-off relaxation or meditation training sessions to multimodal approaches involving training and feedback over a period of weeks to months. Assessing the effectiveness of this wide range of approaches is also complicated by the heterogeneity of outcome measures used (van der Hek & Plomp, 1997; van der Klink et al., 2001). As van der Klink et al. reported, all individual-based interventions showed positive effects, and cognitive approaches may be more effective than somatic methods. Further research making direct comparison between somatic and cognitive techniques may help to clarify or confirm this. A useful framework for such research may be provided by the multi-process model of Davidson and Schwartz (1976). Davidson and Schwartz (1976) developed the multi-process

theory which includes a “specific-effects” hypothesis which suggests that relaxation techniques that have a prime somatic approach (e.g., muscular relaxation) should have somatic or physiological effects or responses, while techniques that have a primarily cognitive approach (e.g., visualisation) should have mostly cognitive or psychological effects. If the specific effects hypothesis were true then it may have implications in tailoring specific interventions to particular individuals according to their particular symptoms (i.e., whether they display primarily psychological or physiological manifestations of stress). Although Gill, Kolt, and Keating (2004) examined the multi-process theory in terms of the effect of primarily somatic and primarily cognitive techniques on somatic and cognitive anxiety without finding any significant difference, there does not appear to have been any such direct comparison of the effects of somatic and cognitive stress management techniques on measures of physiological and psychological stress.

### *2.1.3 Tertiary Stress Management Interventions*

Tertiary stress management interventions are concerned with treatment of the manifest symptoms of disease in individuals, physical or psychological, that may be attributed to stress. Such interventions, commonly referred to as employee assistance programme (EAPs), usually involve the provision of counselling or other treatment services for employees with problems in either the work or personal domain. According to Cooper and Cartwright (1997) about one-quarter of all problems addressed by counsellors taking part in EAPs concerned relationships outside the work environment. This may nevertheless represent a sound investment for the employer as spillover of nonwork stress to the workplace has been shown to have potential adverse effects in the work domain (Leiter & Durup, 1996). Gates (2001) reinforced the view that EAP

services should be available to employees whose main source of stress may lie outside the work environment. Raitano and Kleiner (2004) suggested that at the stage of tertiary interventions, primary and secondary methods have either been inadequately implemented or neglected altogether. This may represent a rather strong view, however, as there is always likely to be some irreducible level of demand stress in any working environment to which some individuals may be vulnerable (Le Fevre et al., 2006).

## 2.2 *Empirical Reviews of Stress Management Intervention Success in Practice*

Since Newman's (1979) early review of the occupational stress literature, which focused primarily on qualitative reports, several major reviews of the empirical literature on stress management interventions have been published (De Frank & Cooper, 1987; Giga et al., 2003; Murphy, 1996; van der Hek & Plomp, 1997; van der Klink et al., 2001). De Frank and Cooper (1987) reviewed the literature published between 1977 and 1987 and reported the extensive variation on outcome measures used to assess the effectiveness of the interventions reported, and the relative lack of controlled studies. Eighteen of the abstracts reviewed fulfilled the criteria of having control groups. There was also minimal long-term follow up in any of the reported trials, six months being the longest period reported. Van der Hek and Plomp (1997) continued the work, reviewing the literature between 1987 and 1994. Again, of 342 abstracts examined only 37 met the authors' criteria of having some kind of evaluation of outcomes, and seven of these were subsequently rejected as their evaluation was purely anecdotal. Van der Hek and Plomp (1997) again commented on the lack of long-term follow up.

Murphy (1996) carried out a review of the literature regarding the health effects of stress management interventions covering papers published in the period 1974 to 1994. Of the 64 papers reviewed, eight included some form of organisational outcome

measure. In six papers this was absenteeism. In four of these papers absenteeism improved in the treatment group relative to controls. One of the remaining papers showed no significant difference between treatment and control groups while the other showed a significant increase in absenteeism in the treatment group over the measurement period. Overall, a majority of the studies showed some positive effect of stress management intervention on health-outcome measures at the individual level.

Van der Klink et al. (2001) carried out a more narrowly-focused study, using meta-analytical technique to assess whether stress interventions were effective, and if so, which types were most effective. The literature between 1977 and 1996 was searched. Only 48 studies met the authors' four main criteria, which were: interventions were designed to reduce psychological complaints related to occupational stress, subjects were drawn from a working population on the basis of already manifested stress, experimental or quasi-experimental design using nontreatment controls was used, and well-defined and reliable outcome measures were employed. The second criterion of van der Klink et al., that subjects should be drawn on the basis of already manifested strain, was a major departure from earlier reviews and had a large role in excluding many trials resulting in the small number of studies included in the analysis. Very few studies had selected subjects on the basis of demonstrated preexisting strain. Failure to do so may compromise the ability to demonstrate positive change (van der Klink et al., 2001). Any preventative effect of an intervention may also be relatively difficult to demonstrate in the absence of preexisting strain without longer-term follow up than is common in SMI research (De Frank & Cooper, 1987; van der Hek & Plomp, 1997; van der Klink et al., 2001).

Van der Klink et al. (2001) found that, in general, employees did benefit from stress reduction interventions, that secondary interventions were more effective than

primary interventions, that cognitive techniques were more effective than somatic techniques, that all individual-based interventions showed positive effects, and that there appeared to be an inverse relationship between length of intervention and effectiveness of intervention. While generally encouraging, the findings of van der Klink et al. (2001) do require closer examination. Previous trials and reviews by Barkham and Shapiro (1990) and van der Hek and Plomp (1997) found that brief interventions focused at the individual level do seem to have higher effectiveness than more lengthy programs. In the van der Klink et al. (2001) paper, the relatively low effect reported for primary interventions is confounded with the fact that the primary interventions tend to be those with longer time frames. The finding of a lower effect in primary interventions is interesting as it tends to contradict the more general opinion expressed in qualitative reviews that primary interventions should be more effective than secondary as they are designed to reduce the number of environmental stressors rather than treat the resulting stress. (Danna & Griffin, 1999). Van der Hek and Plomp (1997) found no correlation between the length of interventions and their effects although they conducted a review rather than a quantitative meta-analysis of the data. This lack of clarity in the relationship between length of intervention and potential gain must raise questions in the minds of those who purchase and recommend stress management interventions, in terms of the cost relative to the benefit.

This variation in type and duration of intervention, and outcome measures employed, may be related to the lack of any universally accepted definition of stress and strain. The majority of outcome measures reported by van der Klink et al. (2001) were subjective, were determined by self-report instruments, and were focused at the individual level. These outcome measures can be summarised under three headings:

- Quality of work life, which includes assessments of job demand, work pressure,

job control, working conditions, and social support

- Psychological resources and response, which include assessments of self-esteem, mastery, and coping skills
- Complaints, which include assessments of stress, burnout, somatic symptoms, depression, and anxiety.

In terms of some of the major occupational stress theories, the outcome measures used appear to fit into the subjective domain of P-E fit (Edwards et al., 1998), Cybernetic Theory (Cummings & Cooper, 1998), and Control Theory (Spector, 1998). In all of these measures, based at the individual level, positive effects were found.

Objective outcome measures reported (van der Klink et al., 2001) included muscle tension, electromyography, catecholamine levels, cholesterol levels, blood pressure monitoring, and absenteeism. With the exception of absenteeism, all of these outcomes were again measured at the individual level. Absenteeism, usually measured through the employers' human resource management systems, is the only organisation-based measure used, and was the only measure to show no significant effect in this meta-analytical study (van der Klink et al., 2001). Studies such as that by Murphy and Sorenson (1988), however, which showed positive effects for absenteeism would have been excluded from the meta-analysis as the subjects were not assessed for preexisting stress. Despite the findings of van der Klink et al. (2001) it would be premature to assume that SMIs have little effect on absenteeism. Murphy's (1996), review would tend to reinforce this view.

Giga et al. (2003) reviewed the literature from 1990 to 2001 selecting for review only those papers that reached at least three stars according to Murphy's (1996) quality evaluation schema (i.e., at least involved an intervention and had some formal

evaluation but not necessarily a control group, were drawn from a normal working population, and had a sample size of at least thirty). As the authors intended to review from a UK perspective, only those studies carried out in the UK were included in this review. De Frank and Cooper's (1987) typology (individual, individual/organisational, or organisational) was used to classify the studies. This classification approximately equates to Quick et al.'s (1997) three-level classification in that individual-based interventions correspond to Quick's secondary interventions while individual/organisational and organisational interventions correspond to primary interventions. Some interventions such as Employee Assistance Programs included under individual interventions may be better classified as tertiary by Quick's schema. The majority of interventions reviewed (>80%) were carried out at the individual level although the authors noted a more recent shift in reported interventions toward organisational level or primary interventions. No firm conclusion was reached concerning the relative effectiveness of the different intervention types although it appeared that organisational and individual/organisational interventions were more likely to lead to improvement in organisational performance than individual-level programs. Individual-level programs were, however, often associated with improvements in mental and emotional well-being.

Van der Klink et al. (2001), van der Hek and Plomp (1997), and De Frank and Cooper (1987) all suggested that SMIs can yield positive results in both subjective and objective parameters at the individual level, although long-term effectiveness has not been clearly demonstrated. There is some indication that repeated brief individual-focused interventions may enhance outcomes in the long term (Barkham & Shapiro, 1990), but there is no clear evidence for the effectiveness of long-term organisation-focused interventions at either the individual or organisational level (Briner &

Reynolds, 1999). Indeed Briner and Reynolds suggested that authors in the field tend to show an enthusiasm that is not supported by available evidence. Whether stress management interventions in general can yield outcomes that result in clear positive effects at the organisational level has not, as yet, been shown. These findings are summarised in Table 2.1.



**Table 2-1 Summary of Main Findings from Stress Management Intervention Reviews**

Authors	Type of study	Interventions studied	Main findings
Newman and Beehr (1979)	Literature review and opinion	<i>Primary interventions</i>	
		Interventions emphasising changing organisational, job, and role variables	Speculative or opinion pieces without empirical support but suggesting positive outcomes for their recommended approaches
		Interventions emphasising organisation wide physical fitness programmes	Speculative or opinion pieces without empirical support but suggesting positive outcomes for their recommended approaches
		<i>Secondary interventions<sup>a</sup></i> Meditation	Speculative or opinion pieces suggesting positive outcomes with one evaluation study showing positive outcomes
De Frank and Cooper (1987)	Literature review and opinion	Philosophy of life	Speculative papers recommending this approach but without empirical evidence
		Behavioural modification	Speculative and opinion pieces recommending this approach but without empirical evidence
		<i>Primary interventions</i>	
		No primary interventions were reviewed as none were "...serious, controlled attempts to evaluate the efficacy of programmes..." (p. 6)	No findings reported for primary interventions
van der Hek and Plomp (1997)	Literature review and opinion	<i>Secondary interventions</i>	
		Relaxation	A total of 18 studies were evaluated all showing some degree of significant positive effect. Control groups were often not present and follow-up was brief to nonexistent.
		Biofeedback	
		Exercise	
		Cognitive coping	
van der Hek and Plomp (1997)	Literature review and opinion	Meditation	A total of 18 studies were evaluated all showing some degree of significant positive effect. Control groups were often not present and follow-up was brief to nonexistent.
		Time management	
		Employee assistance programmes	
		<i>Primary interventions</i>	
van der Hek and Plomp (1997)	Literature review and opinion	Organisation wide Organisational Development (OD) intervention	Burnout, group properties, and staff turnover all improved but no control group used; only change over time was assessed.

Table 2.1 continues

		Organisation wide stress management training	Reduced malpractice claims in medical practice against matched control group, but this study includes a secondary intervention component as well
		Support groups	Improvement in group evaluation but no control groups, no follow-up, and a high drop-out rate in this study
		Combined support groups and stress inoculation training (SIT)	Stress inoculation training effective in reducing self-report stress, no reported effect for group support, no control group and SIT, again has secondary intervention components
		<i>Secondary interventions</i> Relaxation	Muscle tension and self-report anxiety reduced vs. placebo control group
		Individual psychotherapy	Depression symptoms, anxiety, and self esteem improved but no control group
		Rational emotive therapy	Anxiety, depression symptoms, irrational beliefs, weariness, and assertiveness measures showed improvement, one trial controlled one uncontrolled
		Experiential group training	Improvement in personal accomplishment and emotional exhaustion scales of the Maslach Burnout Inventory, no control group
		<i>Multimodal approaches</i>	All showed positive results for measures such as burnout, anxiety, depression and stress but, no control groups
van der Klink, et al. (2001)	Meta analytical study	<i>Primary interventions</i> 5 organisation-focussed trials assessed	Effect size overall $d = 0.08$ and is not statistically significant, total number of participants = 1463 <sup>b,c</sup>
		<i>Secondary interventions</i> 18 cognitive behavioural trials assessed	Effect size overall $d = 0.68$ $p < 0.05$ , total number of participants = 858
		17 relaxation trials assessed	Effect size overall $d = 0.35$ $p < 0.05$ , total number of participants = 982

Table 2.1 continues

8 multimodal programmes assessed			Effect size overall $d=0.51$ $P < 0.05$ , total number of participants = 470
			The cognitive behavioural approaches had a significantly greater effect size than the relaxation approaches but there was no significant difference between relaxation and the multi modal programmes
Giga, et al. (2003)	Literature review and opinion	7 individual-focussed programmes	3 trials had control groups, 4 had no control group. 3 of 4 EAP programmes showed improvements in individual measures of anxiety, depression, self esteem or work satisfaction, one showed no effect on absenteeism or health. 2 of 3 programmes incorporating cognitive behavioural approaches showed reduction in stress symptoms.
		7 individual/organisational-focussed programmes	6 of 7 programmes either showed positive changes in such variables as health, depression, attitude, and self-esteem at the individual level or differences in awareness of stress management and coping.
		2 organisational-focussed programmes	One programme showed positive effects on job satisfaction and one showed that increasing workload had a negative impact on both speed and accuracy of working

<sup>a</sup>Note some papers reviewed in Newman & Beehr (1979) refer to coping responses rather than formal interventions. These have been omitted.

<sup>b</sup>The medical malpractice study of Jones et al. (1988) contributed the largest effect and this study includes a significant secondary intervention component

<sup>c</sup> $d$ = refers to Cohen's 'd' (1988)

### 3 Chapter Three: Stress Management Interventions and Managerial Performance

An underlying assumption, commonly expressed in management texts, particularly organisational behaviour texts, is that occupational stress has a relationship with the performance of individuals within the organisation, usually implied to be negative. It is often on the basis of this assumed relationship, as well as the increasing legislated requirements, that senior managers approve the expenditure of corporate funds on stress management interventions within their organisations. As van der Hek and Plomp (1997) have indicated “The aim of future research should be to establish credibility as to what stress management programmes can or can not accomplish, and under which circumstances” (p. 140). Given this expressed doubt on the validity and reliability of the extant evidence, one might question the reasons for such a strongly held belief in the role of stress in performance in the workplace.

The most commonly reported and investigated sequelae of stress fall either into the physiological/medical or psychological arenas. Many studies have supported the involvement of stress as a risk factor in illness and disease (Bejean & Sultan-Taieb, 2005; Danna & Griffin, 1999; Esler, 1998; Mayer, 2000; Wamala, Mittleman, Horsten, Schenck-Gustafsson, & Orth-Gomer, 2000; Wiholm et al., 2000) while others have emphasised the psychological dimension of the stress response (Abraham, 1999; Bar-On, Brown, Kirkaldy, & Thome, 2000; Barkham & Shapiro, 1990; Bennet & Rigby, 1995; Calnan, Wainwright, Forsyth, Wall, & Almond, 2001; Kagan, Kagan, & Watson, 1995). None of these studies however directly address stress and performance in the workplace at either the individual or work unit level. Though there is emerging evidence to support some relationship between stress and performance in various specific settings (Cincotta, 2006; van Veldhoven, 2005), the assertion that occupational stress, more

specifically distress, has a negative impact on the individual's job performance seems to be based largely on assumptions about the impact of ill-health and psychological dysfunction on job performance, linked in turn to more firmly established relationships between stress and mental and physical health.

Organisational behaviour texts, intended primarily for management students, frequently suggest that performance suffers in the presence of occupational stress (e.g., Campling et al., 2006; Kreitner, Kinicki, & Buelens, 2002; McShane & Travaglione, 2003; Robbins, Millet, & Waters-Marsh, 2004). However, the reasoning that leads to the conclusion given in the books' text is seldom explicitly stated and may not be directly supported by the references given. As an example, the statement "When stress becomes distress, job performance falls and workplace accidents are more common" (McShane & Travaglione, 2003, p. 235) is referenced to the works of Jamal (1984), Keinan (1987), and Motowidlo, Packard, and Manning (1986). None of these references address workplace accidents, none are set in a "managerial" or general organisational context, and none make such bald statements about any relationship between stress and job performance.

Sullivan and Bhagat (1992) reviewed two decades of empirical literature concerned with the relationship between organisational stress, job satisfaction, and job performance. They listed four major hypotheses concerning this relationship, the first being the inverted U relationship usually attributed to Yerkes and Dodson (1908), the intuitive appeal of which fails, as they point out, to be supported by empirical evidence. The second is that stress and performance have a positive linear relationship. "This hypothesis suffers from some conceptual inadequacies, especially its failure to consider the dysfunctional aspects of stress and individual differences." (Sullivan & Bhagat, 1992, p. 361). The third suggests a negative linear relationship between stress and

performance, interpreting stress as essentially dysfunctional, one of its problems being that it fails to take account of any possible positive aspect of stress. The fourth suggests there is no relationship between job stress and performance at all. The basic premise underlying this hypothesis is that people behave rationally and can ignore stressors while they are concerned with performance, because performance is what they are rewarded for. The authors conclude that job autonomy is more important than the nature of the job in precipitating job-based role stress or affective outcomes, and make recommendations for the future research agenda to include qualitative and process-based approaches. The authors also point out that studies in this area, and their outcomes, are profoundly influenced by the way stress is defined and operationalised. They come to no clear conclusion as to the nature of any stress-performance relationship.

More recent work has begun to address some of these issues by either using specific relevant performance measures or using more general organisational settings and organisationally relevant performance measures. Secondary school students in the UK who took part in stress management training showed an average one-grade improvement in the results of their nationally standardised GCSE examinations relative to matched controls (Keogh, Bond, & Flaxman, 2005). Although still outside an organisational setting, and very narrow in context, this study does at least demonstrate a clear positive outcome from the use of a stress management intervention. Van Veldhoven (2005), in a longitudinal study, used self-report estimates of perceived HR practices and corporate data (a business unit level performance profits to costs financial ratio indicator) to examine the temporal relationship between stress and performance at the business unit level. The self-report measures were also aggregated to the business unit level for analysis. Both forward and backward linkages were examined and stress

was operationalised as “work speed, quantity, and intensity”. The author found that higher work pressure and intensity predict poor financial performance and poor financial performance precedes high job stress for affected business units. Recently, Cincotta (2006) also showed that, at the aggregate level, there was “an inverse relationship between employees’ individual occupational stress levels and the effectiveness of the Logistics Center in which they were employed.” (p. ii). These more recent studies do begin to look at the broad organisational context and relate some specific common stressors, work pressure and intensity (van Veldhoven, 2005) or self reported stress (Cincotta, 2006) to some meaningful measures of aggregate performance at the business unit level. Assessment of the relationship, if any, between stress and occupational performance at the individual level is still missing however. In order to develop possible approaches for assessing managers’ occupational performance that may be usable in the research context it may be helpful to examine the role of managers in organisations, and the nature of their jobs, and how these relate to organisational performance.

### *3.1 Organisational Performance and the Role of Managers*

#### *3.1.1 The Manager’s Job*

Probably the first formal definition of what constitutes the manager’s job was given by Fayol in his 1916 “Administration Industrielle et Generale” (1987, trans. Gray). This rather prescriptive description of planning, organising, coordinating, commanding, and controlling formed the basis for Fayol’s theory of administration, first brought to the attention of organisations outside France by Constance Storrs’ 1949 translation. Fayol’s background was in geology and mining, his experience as director

of Comambault, whose operations he turned around from near failure to considerable success, being the basis for his writings.

Later writers (e.g., Koontz, 1956) further developed and modified Fayol's original model, developing what became known as the administrative, or classical school of management theory. Lists of prescriptive management "functions" were a major feature of these models (e.g. planning, organising, staffing, directing, and controlling, Koontz, 1956), with little indication of how a manager's output or performance might be measured or even defined.

Concurrent with Fayol's developments on administration, Taylor, another engineer, was developing methods for studying work processes and techniques to develop the most efficient ways of carrying out the essential functions of an organisation (Taylor, 1911). Fayol and Taylor both, in their slightly different ways, advocated for the existence of a set of principles that organisations could implement and thereby achieve effective and efficient operation. This has been referred to as the "one best way" approach (Inkson & Kolbe, 1998). Under Fayol's organising rubric comes the responsibility for structuring the organisation in such a way that its operations may be effectively carried out. His fourteen principles for organisational design and effective administration, given below in Figure 3.1, still bear critical appraisal today as the basis for sound "organisation"



**Figure 3.1: Fayol's fourteen principles for organisational design**

<b>Principle</b>	<b>Explanation</b>
<b>1) Specialisation of labour</b>	The principle of allocating work in such a way that high skill and specialisation could be developed and high efficiency achieved
<b>2) Authority with corresponding responsibility</b>	The principle of allowing sufficient authority to enable responsibilities to be effectively discharged
<b>3) Discipline</b>	The principle of discipline in behaviour such that standards of obedience, application, energy and respect are observed between a firm and its employees
<b>4) Unity of command</b>	The principle that each employee should have only one superior or “boss”
<b>5) Unity of direction</b>	The principle of having one agreed purpose and direction for an organisation or part of an organisation
<b>6) Subordination of individual interest to the general interest</b>	The principle that no one employee or group of employees’ interest should prevail over the organisation, (A neutral unitarism is assumed.)
<b>7) Remuneration of staff</b>	The principle that remuneration should be fair and be satisfactory to both the firm and its staff
<b>8) Centralisation</b>	The principle that the organisation’s control is, ultimately, centralised
<b>9) Scalar chain of authority</b>	The principle that there should be a definable line of authority and command from the chief to the lowest level worker, and that it should be simple, clear, and understood
<b>10) Order</b>	Implies the principle of orderliness so that those in the organisation can reasonably predict its behaviour under given circumstances both in general and as it applies to them
<b>11) Equity</b>	The principle that justice should characterise the workings of the organisation
<b>12) Stability of tenure</b>	The principle that employees should have security in their employment to promote loyalty and give time for development
<b>13) Initiative</b>	The principle that employees should have the scope to use their own initiative within their jobs yielding zeal and enthusiasm for their work
<b>14) Esprit de corps</b>	Literally the spirit of the body or group, the sense of belonging and keeping harmony within the group

Little has changed in the basic prescriptive requirements of the management function since 1916, though the means by which they may be affected have changed as technology has come to exert its increasing influence on human communication and interaction. Nevertheless, these prescriptions don't seem to capture the reality of managers' daily experience of working. As Mintzberg (1975) put it, these words "...tell us little about what managers actually do. At best, they indicate some vague objectives managers have when they work." (p. 49). Mintzberg's ground-breaking work on the roles of managers gave a very different descriptive view of managers' reality. He observed five senior executives in action over a one-week period as well as analysing their written correspondence. This observation showed a daily reality far removed from the reflective controlled impression given by the Planning, Leading, Organising, Controlling, and Staffing (PLOCS) model (Kotter, 1996) usually taught in management texts (Bartol, Tein, Matthews, & Martin, 2005; Campling et al., 2008). Mintzberg's, at the time revolutionary, view of the managers' job described ten roles played by managers, clustered under three main headings. Under the heading of Interpersonal Roles are the manager's functions of acting as figurehead, and leader, and the liaison role that involves making and maintaining contacts outside the vertical chain of command. Under the heading of Informational Roles come the functions of monitor and disseminator of information plus the role of acting as spokesperson for the organisation both internally and externally. Under the third heading of Decisional Roles are the last four roles of entrepreneur, disturbance handler, resource allocator, and negotiator. Two predominant features of Mintzberg's roles are that they are all based in the effective use of interpersonal relationships and communication, and none can stand alone. They form an integrated whole no matter what variations in emphasis individual managers may bring to their own job. Mintzberg used the term *gestalt* to describe the total role or job

of the manager. Comments reported from managers responding to Mintzberg's model reflect the degree to which the PLOCS model failed to reflect their perceived reality. "You make me feel so good. I thought all those other managers were planning, organizing, coordinating, and controlling, while I was busy being interrupted, jumping from one issue to another, and trying to keep the lid on the chaos" (Mintzberg, 1990 p 170). Nevertheless, as Koontz (1980) has suggested, most of Mintzberg's roles may still be effectively mapped onto the PLOCS model (i.e. resource allocation seems to be an aspect of planning and the interpersonal roles aspects of leadership). The differences may lie between a prescriptive view, focussed on prescribed activities to be carried out, versus a description of the milieu within which those activities must usually be executed.

Other work that describes management in terms of leadership (Kaplan & Kaiser, 2003) or tasks, activities, and relationships (Kotter, 1982) adds to the ever widening set of descriptions and prescriptions of what constitutes the manager's job. In no case, however, do any of these theories or models give a clear view of how one might go about measuring or assessing a manager's performance in terms of their success at meeting these parameters of managerial function. Yet here is a conundrum. There is implicit in the literature on management the idea that the performance of an organisation's managers bears some relatively significant relationship to the performance of the organisation itself. As Koontz (1984, p. 11) indicated "few would deny that the quality and vigour of managing make the difference in long-run success or failure in any organisational operation, whether in business, government, or elsewhere." Lieberman and O'Connor (1972) concluded that leadership at the higher levels had little effect on organisational performance by the primarily financial measures of revenue and profit. Thomas (1988), however, showed in a small replication trial, and by reanalysis of

Lieberson and O'Connor's and Weiner's (1978) data that, depending on method of analysis, up to 60% of otherwise unexplained variance in performance in large individual corporations over time could be due to organisational leaders. Huselid (1995) also stated that the theoretical literature suggested that individuals' behaviour had important implications for organisational performance. By inference, the behaviour of leaders and managers throughout an organisation should have an effect on its performance. The difficulties lie in definition and measurement. As Perrin (1998) suggested, there appears to be an inverse relationship between the importance of an indicator of organisational performance and its ease of measurement. The performance of managers would appear to be one of the most difficult to measure or define. Indeed, according to Pye (1991), when questioning chief executive officers and management development directors "...none felt able to offer a full account of what they require of effective managers yet each felt they would 'know' a good manager if they saw one, even though quite why or how was beyond articulation" (Pye, 1991, p. 101).

### *3.1.2 The Measurement of Organisational Performance*

How organisations' own performance might be defined or measured has been conveniently ignored so far in discussing the managers' job, the performance of that job, and an implied relevance of that performance to the organisations' performance. As Ittner and Larker (1998) suggested, the choice of performance measure may be one of the most critical challenges facing organisations. As Ittner and Larker have also shown there is a circularity in attempting to develop and use measures for organisational performance that, once adopted, tend also to shape managerial behaviour, especially when such measures are linked to individuals' compensation. Bruns and McKinnon (1994) confirm and reinforce this finding in that managers in organisations with well-

defined performance evaluation schemes tend to spend considerable time in those activities that are the basis of their performance evaluation. This is especially the case where such activities can be quantified. According to Ittner and Larker, financial measures remain the most commonly employed indicators of organisational performance, even in those organisations that ostensibly adopt such approaches as the balanced scorecard (Kaplan & Norton, 1992), itself only one example of the broader multiconstituency approach to organisational performance. Multiconstituency approaches attempt to define and measure organisational performance in terms of a wider set of interests than those represented by financial investors. Zammuto (1984, p. 614), developed a multiconstituency definition of the construct of organisational performance as "...human judgements about the desirability of the outcomes of organisational performance from the vantage point of the varied constituencies directly and indirectly affected by the organisation." Wide as this definition is, it does not negate any relationship, direct or implied, between the performance of an organisation and the performance of its managers, however either may be measured.

The assessment of both organisational and managerial performance is further complicated by the frequency with which objective measures are difficult or impossible to obtain, and the inherently political nature of any process for their definition (Perrin, 1998). Perhaps as a result of these problems researchers often resort to the use of more readily available subjective measures of performance such as the opinions of various stakeholders within the organisation. Approximately half of the published studies relating human resource management to performance use this kind of subjective data (Wall et al., 2004). Several authors have presented evidence relating to the validity of subjective measures of organisational performance (Baer & Frese, 2003; Guthrie, 2001; Machin & Stewart, 1996). Wall et al. (2004) made a particularly thorough examination

of this question. The findings from the two studies they present show good evidence of convergent validity, as the subjective measures were shown to be positively related to their objective counterparts. In addition, discriminant validity was consistently demonstrated in that the relationships between corresponding subjective and objective construct measures were stronger than the relationships between any of the different constructs whether measured subjectively or objectively. Finally construct validity was demonstrated by relating the use of various management practices to both subjective and objective performance measures. In all cases, the correlation between management practices and objective performance measures was not statistically distinguishable from that between the same practices and their corresponding subjective measure.

In summary, therefore, organisational performance may have, as Zammuto (1984) puts it, a potentially infinite number of ways of being defined and measured depending on the viewpoint of the stakeholder or constituency concerned. Fundamentally, however, financial return is still the measure that is most commonly accepted in practice as the ultimate metric of organisational performance. Thomas (1988) showed that senior management has significant impact on performance and Huselid (1995) also suggested that individuals in the organisation have significant impact on organisational performance. However one looks at it, managers and their performance matter, no matter how one chooses to measure organisational performance. Yet what is it about a manager that matters to performance, and how might that be assessed?

### 3.2 *Assessment of Managerial Performance*

As Koontz (1972, 1984) has pointed out, managers should be appraised on what they do in their jobs and not on what raters think of the person or their work habits. A degree of objectivity is required if appraisal of a manager is to be related to performance criteria that are relevant to organisational outcomes. Koontz goes to some lengths to argue for objective measures to be used for managerial assessment that are linked, on one hand, to the specific technical outputs of their job function such as financial targets reached, and also for equally objective measures to be used to appraise “managers as managers” in terms of his PLOCS model. Having made this point Koontz goes on to say “Undoubtedly appraising against objectives, as promising and sensible as it is,... since it only measures end result performance it overlooks how effective a manager is as a manager” (Koontz, 1984, p. 15). There are, as Deming (1982) and Koontz agree, many extraneous factors outside the control or influence of the manager that intervene in the process of striving toward any desired objective. Perhaps therefore behaviour on the job, that can at least be directly observed, might go some way to meeting Koontz’s desire to assess “managers as managers”, provided the observed behaviours can be, or have been, shown to be relevant to managerial performance.

Orpen (1997) examined jobs, using a framework originated by Ouchi (1979) and shown in Figure 3.2, in terms of two dimensions. The first dimension was concerned with the transformation process or means-end relationship embodied in the job and the degree to which this was, or could be, accurately known. The second dimension reflects the degree to which measures were available that provide accurate, reliable, objective indications of performance. Combining these two dimensions yields a two-by-two matrix with four cells that can be used to classify jobs.

**Figure 3.2 Job Control Framework: Slightly modified from Ouchi (1979) as cited in Orpen (1997)**

<b>Availability of performance measures</b>	<b>Knowledge of the transformation process</b>	
	<b>High</b>	<b>Low</b>
<b>High</b>	<b>Behaviour-based procedures (e.g., clerk, assembly line worker)</b>	<b>Objectives-based procedures (e.g., salesperson, teacher)</b>
<b>Low</b>	<b>Objectives-based procedures (e.g., pilot, supervisor, reporter)</b>	<b>Judgement-based procedures (e.g., priest, diplomat, researcher, manager)</b>

Using Orpen's classification, management jobs fall into cell four. These are jobs characterised by both incomplete knowledge of the means-ends relationships and a lack of reliable, valid performance measures. Orpen's suggestion is that in these types of job, appraisals, if they are to be carried out, should be performed using multiple raters who are independent and knowledgeable about the job. This approach seems to be a reflection of a basic problem in the performance assessment of managers in that there is a considerable lack of clarity or consensus on what should be measured or by whom. Despite doubts and difficulties (Carson & Cardy, 1991; Cook, 1995; Wiese & Buckley, 1998), formal management performance appraisal is, and seems likely to remain, the prime method of assessing management performance, and a routine aspect of human resource management systems. This may possibly be at least partially due to the



increasing necessity for legally defensible mechanisms for promotion or sanction activities in an increasingly litigious society (Wiese & Buckley, 1998). The degree to which management performance research also uses performance appraisal as the criterion against which other constructs are assessed (Atkins & Wood, 2002; Beehr, Ivanitskaya, Hansen, Erofeev, & Gudanowski, 2001; Fletcher & Baldry, 2000) suggests that, with all its problems, performance appraisal is still the most generally used and accepted criterion for judging managers' performance.

### *3.2.1 Management competency models*

Boyatzis (1982), in particular, was interested in what characteristics and behaviours were features of high performing or superior managers, and might be used to distinguish them from average and poor performers. He defined those characteristics and behaviours that relate to job performance as competencies. Klemp (as cited in Boyatzis, 1982, p. 21), defined a job competency as "an underlying characteristic of a person which results in effective and/or superior performance in a job." Boyatzis developed a generic competency model after investigating the relationship between performance, using a three-value ordinal scale of poor, average, and superior performance, and a range of expressed skills and traits derived from job element analysis across multiple organisations from both the private and public sectors with a final sample of 1,009 managers. The model consists of 18 competencies structured as five meta-competency clusters plus one competency "specialised knowledge" that remained outside the clusters. Competencies that would be required of any person to be able to perform a job adequately, and that may not therefore distinguish superior performance, are termed threshold competencies; specialised knowledge represents one of these threshold competencies. Boyatzis' criterion for performance against which the

competency model was developed and validated was, in common with the majority of research in this area, the assessment of the subjects' performance by their senior managers (performance appraisal). The senior managers assessed their subordinates on the three-point scale of poor, average, or superior performance. Boyatzis' intent was to develop a competency model that could be used to distinguish superior performers from other managers, and perhaps predict future superior performance.

The management competency model developed by Boyatzis (1982) has been used as a basis for the development of other models of management competency. Some have been developed specifically for a particular country, and others for specific organisations (Page, Wilson, & Kolb, 1994). Hayes, Quirie, and Allinson (2000) developed an extensive listing of competencies by interviewing senior managers and asking what competencies they felt were important. An original list of 295 competencies was reduced to 65 by eliminating those that were not common to at least 25% of their respondents. Only two competencies were common across all four work environments included in the study, "knowledge of relevant legislation" and "communication skill." It is likely that knowledge of relevant legislation may be related to the context within which the Hayes study was carried out rather than being part of a generic competency model as it does not commonly occur in other models. Communication skill as a generic competency, however, appears in several other competency models. It is present in Boyatzis' model under the title "use of oral presentations" as part of the "leadership meta-competency" cluster. In Boyatzis' model this competency includes the capacity to use spoken communication effectively with one or many people and includes the effective use of body language.

Abraham, Karns, Shaw, and Mena (2001) developed a set of 23 generic management competencies by surveying organisations to find which management

competencies were being used to describe successful managers. Six competencies were most often cited as important (leadership skill, customer focus, results orientation, problem solver, team worker, and communication skill).

Work by Boyatzis (1982) and others (Dulewicz & Herbert, 1999; Saville Holdsworth Ltd., 1993) has suggested a positive relationship between the expression of specific competencies and success as managers. Boyatzis' model was, indeed, predicated on the idea that managers with superior performance could be differentiated from their less effective peers on the basis of the competencies they displayed. Saville and Holdsworth (1993), using a sample of 33 bank mortgage managers, showed significant correlations between the co-ordinating and strategic competencies from their Inventory of Management Competencies (IMC) model and performance assessed as mortgage completions and peripheral earnings. The IMC persuasive and flexible competencies were also positively correlated with mortgage completions, while the innovative and commercial competencies were positively correlated with peripheral earnings. Dulwicz (1999), using longitudinal data over a seven-year period, indicated that the competencies of risk-taking, planning, motivating others, and persuasive, and the meta-competencies of planning and organising, and assertive and decisive, were significantly correlated with rate of advancement in a sample of 72 managers who had attended the Henley Management College. An interesting aspect of Dulwicz and Herbert's paper was that personality factors derived from the Occupational Personality Questionnaire (OPQ) (Saville Holdsworth Ltd., 1984) while apparently good predictors of seniority were far less effective predictors of rate of advancement than the competencies. The authors suggested this may be due to the more performance-related nature of the competencies and the fact that the competencies were measured using a multi-rater system while the OPQ is a self-report instrument only.

### *3.2.2 The use of multirater competency assessments*

As in Dulwicz and Herbert (1999), where competency assessment is used organisationally, it is most frequently carried out using some variant of the 360-degree appraisal process (Edwards & Ewen, 1996). 360-degree appraisal was popularised by Edwards and Ewen as a form of multisource feedback in which self reports were combined with reports from subordinates, peers, superiors, and possibly customers, to reduce individual bias in aggregated reports and, in some methodologies, to enable comparison between different rating sources for the purpose of constructive feedback and development. There is, indeed, an extensive literature concerning self versus other ratings in multisource appraisal (Atkins & Wood, 2002; Atwater, Ostroff, Yammarino, & Fleenor, 1998; Beehr et al., 2001; Fletcher & Bailey, 2003; Harris & Schaubroeck, 1988; Johnson & Ferstl, 1999; Nilsen & Campbell, 1993b). In practice, full 360-degree appraisal is seldom used, with most systems employing self, peer, and supervisor ratings; while subordinate ratings are more frequently used for managerial assessment. This partial system is sometimes referred to as 180-degree appraisal (Macky & Johnson, 2003). Multisource appraisal is still firmly based in the performance appraisal paradigm wherein one's performance is assessed on the basis of the observations, and ultimately perceptions of others, but with the addition of an element of self-appraisal and a broader constituency of others than the traditional appraisal by superior.

A number of authors have examined the degree to which multisource appraisals, usually based on competency models, correlate with other methods of performance appraisal and with performance of participants in assessment centre exercises. Beehr et al. (2001) examined the relationship between self and other ratings, in a 360-degree competency appraisal system, to three- and four-year-old routine performance

appraisals performed by the target's superiors (Target is the term used to describe the person who performs the self appraisal in multi-source appraisal). The competencies rated were titled "facilitation of others", "respect for diversity", and "delivery of results". Ratings by peers and managers (superiors) showed modest positive correlations with both three-and four-year-old ratings. Self-ratings, however, did not correlate with either of the performance appraisals. Superior's ratings showed correlations from 0.18 to 0.28 with the routine performance appraisals while peer's ratings showed correlations from 0.12 to 0.30. All were significant at  $p < 0.001$ . Self ratings showed no significant correlation with either performance appraisal. Peer and superior's ratings also correlated positively with each other (0.36 for facilitation of others, 0.44 for respect for diversity, and 0.39 for delivery of results). The respective correlations between superior and self were 0.06, 0.07, and 0.10, while those between self and peer were 0.15, 0.11, and 0.24. Harris and Schaubroeck (1988), used meta-analysis to specifically examine self, peer, and supervisor rating correlations. Their findings parallel those of Beehr et al. in that peer-supervisor ratings showed relatively strong correlation (0.62) while self-supervisor (0.35) and self-peer (0.36) were more modest. Atwater et al. (1998) compared self and other 360-degree ratings with assessments of performance carried out in an assessment centre setting where the exercises and assessment were based on the same set of competencies as the 360-degree instrument. The assessment centre consisted of five exercises carried out over one day using specialist raters and had 63 participants. The overall assessment centre score was used as the performance measure for comparison. The aggregated others' score predicted performance in the assessment centre as did the supervisor ratings alone. "Despite the various measurement difficulties associated with 360-degree feedback programs, the ratings of observers, particularly those of supervisors, provided valid measures of staff competency." (Atwater et al., 1998, p.

895). Targets were the weakest predictors of their own competency “Those rating themselves in the mid range of the scale were more likely to be high performers than those who rated themselves at the top or bottom ends of the scale” (Atwater et al., 1998, p. 897). Church (2000) showed that higher performing managers, as defined by their having received consistently high performance ratings, could be reliably differentiated by their competency scores on multirater assessments, and Waldman and Atwater (2001) showed that upward feedback using competency assessments was correlated with formal appraisal scores. Sala and Dwight (2002) showed that others’ assessments of managerial competencies, particularly direct reports, correlated well with objective measures of organisational performance, especially so where interpersonal competencies were concerned. There would thus appear to be evidence that multisource competency assessment has some validity as a measure of management performance related to both individuals’ performance and the performance of the organisations within which they work. This should perhaps not be entirely surprising given the origin of models such as Boyatzis’ in efforts to distinguish superior from average or poor management performers. The apparently low utility of self-appraisal as an indicator or predictor of performance is of interest, however, and may suggest that self-appraisal competency scores should not be included in aggregate scores from multisource instruments, and that other-appraisals of competency may be the measures of choice where 360-degree competency instruments are used to assess managers’ performance.

### *3.3 Summary and introduction to the studies*

The first three chapters of this thesis have briefly reviewed a relevant selection of the literature from the fields of stress, occupational stress, and management, and also from organisational and managerial performance assessment. The purpose in bringing

together such a relatively diverse literature has been to show where gaps exist in the current understanding of relationships between occupational stress, its management, and performance that might be usefully examined, and also where relationships exist within that literature that might be used to illuminate such gaps.

As has been demonstrated (Atkinson, 2000a; Bejean & Sultan-Taieb, 2005; Cartwright & Boyes, 2000; Cox et al., 2002; HSE, 2006; Midgley, 1997) efforts to reduce stress in the workplace should pay dividends at both the individual and organisational level. The nature of such dividends at the individual level has been fairly well established with improvements in both psychological and physiological measures having been repeatedly demonstrated in empirical trials (Ost, 1987; Shimazu, Umanodan, & Schaufeli, 2006; Souter, 2001; van der Hek & Plomp, 1997; van der Klink et al., 2001; Winzelberg & Luskin, 1999). Potential organisational benefits have been less clear (van der Hek & Plomp, 1997; van der Klink et al., 2001). Van Der Hek and Plomp have also suggested that there is little evidence showing the relative effectiveness of the various subcomponents that go to make up the usual multi-faceted SMI. Direct comparison of some of those subcomponents should help to clarify this area, and Davidson and Schwatz (1976) multi-process theory may be a useful model to use. In terms of relationships between organisational performance and perceived personal stress, van Veldhoven (2005) and Cincotta (2006) have both demonstrated inverse relationships between stress and performance at the aggregate organisational level. These studies do not, however, involve specific stress management interventions, but rather correlate existing stress levels with performance measures. At a very specific level, the performance of secondary students in national examinations was shown to be improved when stress management techniques were employed (Keogh et al., 2005). Where evidence seems still to be lacking is in the area of the effects of SMIs on the

performance of individuals in the workplace, and how their performance may relate to the performance of the organisation.

Thomas (1988) and Huselid (1995) showed that managers' performance impacts on organisational performance, and other authors have argued from a more theoretical point of view that this is so (Koontz, 1972; Kotter, 1982; Mintzberg, 1990). The difficulties of demonstrating this relationship seem to derive primarily from problems of definition of managers' performance (Pye, 1991) and, therefore its measurement. Boyatzis' (1982) development of his management competency model appears to go some way to providing a possible means of measuring, at least a proxy for, managerial performance and the later development of multi-rater instruments employing various management competency models offers practicable opportunities to undertake such measurement. Encouragingly, studies have repeatedly shown that such multirater management competency assessments correlate well with other more accepted measures of managerial performance such as formal performance appraisals or assessment centre outcomes (Atkins & Wood, 2002; Beehr et al., 2001; Johnson & Ferstl, 1999; Nilsen & Campbell, 1993a), and more objective measures of organisational performance (Sala & Dwight, 2002). A conclusion held in common among most of these studies is that others' appraisals of managerial competency are most closely related to performance appraisal, assessment centre outcomes, or objective measures of organisational performance.

More generally, in the wide field of occupational stress and stress management intervention studies there has been a relative lack of longitudinal studies, especially studies employing an experimental protocol with nonintervention control groups although this situation has more recently improved (e.g., Giga et al., 2003). Follow-up subsequent to the immediate period after the intervention is also rare, and commercial



and corporate settings have been rather underrepresented in such evaluations. The two studies reported in this thesis attempt to address several of these apparent gaps in the literature by directly comparing the effects of the use of cognitive and somatic, individual-focussed, stress management techniques on personal stress and performance in corporate managers. An experimental protocol is used with a wait list control group and follow-up assessments of both stress and performance. The effects of the somatic and cognitive techniques are directly compared using the multi-process theory as a framework, and self and others' assessments of managerial competency are used as measures for managerial performance.

## 4 Chapter Four: Study One

### 4.1 *Introduction*

From the preceding summary and introductory chapters of this thesis it is apparent that there are several issues that do not appear to have been directly addressed in past research. As van der Hek and Plomp (1997) pointed out, there was little information on which to judge the relative effectiveness of the different components that may go to make up stress management interventions. Although the proportion of well-constructed studies in occupational stress appears to be increasing (Giga et al., 2003), few address the outcomes of their interventions in terms of occupational performance measures as well as in terms of physiological or psychological measures of stress or anxiety, nor do they attempt direct comparisons between the subcomponents of interventions. There are also few studies that conform to Murphy's (1996) top level criterion (an experimental set up with control group) with many lacking control groups. As has been mentioned previously, however, Randall, Griffiths, and Cox (2005) added to this area by their investigation of adapted study designs which may help to alleviate the difficulties inherent in setting up controlled studies in organisational settings.

The main study reported in this thesis attempts to address some of these issues. Individual level, rather than organisational level interventions have been used in this study for two main reasons. The first is entirely practical. Organisational level interventions would be very difficult to examine using a randomised controlled trial, and the increased complexity of measuring aggregate organisational performance while attempting to control for environmental variables would make such an approach impracticable. The second (and related) reason is the relatively poor record of organisational level intervention trials for producing significant results (van der Hek and

Plomp, 1997 van der Klink et al. 2001) One of the main purposes of this study was to examine the effect of SMIs on managerial performance. It would be difficult to justify any performance improvement as due to the SMI if improvement in stress measures could not also be demonstrated. In terms of van der Hek and Plomp's (1997) assertion regarding a lack of evidence about the effectiveness of subcomponents of stress management interventions, the current study examined individual-focussed secondary interventions, and directly compared two approaches (somatic and cognitive) that are often combined in stress management interventions. The degree to which the different approaches may have specific, rather than general effects (Davidson & Schwartz, 1976) was also examined. Primary, or organisation-focussed, stress management approaches were specifically excluded from this study to allow the individual-focussed approaches to be examined free of other stress-focussed organisational initiatives (i.e., participant organisations were not engaged in other stress management initiatives during the period of this study.) The two particular interventions used in this study were chosen to represent two of the main types of subcomponent often used in broad SMIs, namely somatic techniques that are primarily aimed at physical manifestations of stress, and cognitive techniques that are primarily aimed at psychological manifestations of stress. In both cases the particular techniques used were chosen to be compatible with the busy corporate milieu. The techniques are described in detail in the Procedure section (4.6.1).

Explicitly, a main focus for the current study was to detect any effect that the use of cognitive or somatic stress management techniques may have on personal stress levels and performance, and to see if there were specific effects attributable to the particular technique used as postulated by Davidson and Schwartz (1976). In summary, the specific gaps evidenced in the literature that will be addressed in this study are:

- the lack of evidence for the effectiveness of the subcomponents that may

make up SMIs

- the lack of evidence for any effect of SMIs on managerial performance
- the lack of controlled experimental studies of the effects of SMIs
- the lack of longer-term follow-up measures of the effects of SMIs
- the under-representation of commercial and corporate settings in studies of the effects of SMIs.

## 4.2 *Hypotheses*

Considerations of the effectiveness of individual stress management techniques and of the multi-process theory (as referred to above), lead to the first three hypotheses for this study.

1. The practice of individual stress management techniques will reduce levels of personal stress.
2. The practice of somatic stress management techniques will primarily reduce levels of physiological stress.
3. The practice of cognitive stress management techniques will primarily reduce levels of psychological stress.

In terms of the relative lack of studies which examine occupational performance in relation to stress management interventions (Le Fevre et al., 2006; Murphy, 1996) this study sought to investigate whether the use of individual-focussed stress management techniques produced any change in the performance of corporate managers in their work situation. Specifically, this study sought to investigate whether managers' performance was improved by the use of stress management techniques not only according to their own perceptions of their performance, but also according to the

perceptions of others in the organisation. This leads to the further hypotheses for this study.

4. The practice of stress management techniques will improve managers' perceptions of their performance in their work situation.
5. The practice of stress management techniques will improve others' perceptions of managers' performance in their work situation.

It should be noted that each of these hypotheses will be defined more specifically in section 4.7 once the outcome measures have been introduced and discussed.

### *4.3 Participants.*

Participants were managers in commercial organisations. Commercial organisations, in this case, were defined as those that were not from the education, health, or public service sectors. For this study, managers were defined as those who had significant operational responsibility within the organisation and had at least one level of staff subordinate to them in the organisation structure. Within this broad definition three levels of manager were recognised: executive managers, who reported directly to the chief executive officer (CEO) and board of directors; managers, who did not report directly to the CEO or board but had at least one further management layer subordinate to them; and team leaders who did not report directly to the CEO or board and had nonmanagerial staff who reported to them.

### *4.4 Enrolment*

To be considered as potential participants in this research project, organisations had to fall within a definition of "large corporate organisation". This was due to the desire to carry out the research in a corporate setting combined with the consideration of

needing the organisations to be large enough to a) have defined human resource and/or occupational health and safety functions, and b) supply a sufficient number of managerial staff for randomisation into intervention and control groups to be operationally practicable. Potential participant organisations (those having at least 30 managerial level staff located in an Auckland office) were initially contacted through their human resource or occupational health and safety managers. Those organisations that showed initial interest were provided with detailed information about the research programme, usually through private meetings with the human resource, health and safety, or training managers, or less frequently through a presentation to the senior management team. In the presentations or meetings, information on the aims of the research, the techniques that would be taught, the structure of the workshops, and the time requirements for participants for training and data gathering (completion of psychometric instruments) were given. For those organisations that decided to take part, these initial approaches were followed by the lengthy process of arranging the invitations to participate for their managers, completing formal documentation for participation in a research project, randomising volunteers to intervention or wait list control groups, and arranging the venues for the testing and intervention sessions. These arrangements took approximately six months to complete for each cohort. The initial approaches to potential participant organisations were all carried out by the researcher as were the information presentations or meetings and the logistical arrangements for workshops and data gathering sessions.

#### *4.5 Organisations taking part*

Three major organisations were involved in the study, one from the New Zealand entertainment and accommodation industry (Organisation A), one from the

New Zealand telecommunications industry (Organisation B), and one from the Australian telecommunications industry (Organisation C). The latter two are members of the same multinational corporation operating independently in their respective geographical locations. Organisation B took part in two intervention and assessment cycles involving separate cohorts of managers. The first began on 21<sup>st</sup> June 2005, and the second began 13 months later on 31<sup>st</sup> July 2006. Organisations A and C each took part in one cycle only. Organisation A began on 20<sup>th</sup> August 2003 and Organisation C on July 25<sup>th</sup> 2005. Thus, there were 4 cohorts of participants from 3 organisations who took part in separate intervention and measurement programmes over a three-and-a-half year period.

The first cohort from Organisation B and the two cohorts from Organisations A and C were recruited by open invitation issued through the organisations' health and safety and human resource management offices. In each case enrolled participants were randomly allocated to either of the two intervention groups (cognitive or somatic technique) or to a wait list control group, after which the workshop and data gathering sessions were timetabled and entered into the individual's on-line diaries through the corporate health and safety managers. Those individuals randomised to the wait list control group were informed that they would be receiving their technique training after the completion of their psychometric measurements in 24 weeks time. Cohort two from Organisation B was enrolled through a slightly different protocol. This different approach was taken in an attempt to reduce the attrition rate amongst participants by aligning the stress management sessions with normal, regular, management meetings. Through the organisation's health and safety manager, executive managers were asked to consult their teams to see if their team was interested in taking part in stress management workshops. Those teams who decided to take part were then randomly

allocated to either of the two intervention groups (cognitive or somatic technique) or to a wait list control group. Volunteers were then sought from these teams to participate in the research process. Thus, for this cohort, teams rather than individuals were randomised to treatment or control groups and, although all team members who wished to, took part in the stress management training workshops, only those team members who chose to volunteer to be part of the research process participated in the research-related data gathering. Participants (or teams in the case of cycle two in Organisation B) were randomised to an intervention group, (cognitive or somatic), or a wait list control.

In each organisation a proportion of those who enrolled for, and began, the training and assessment regimen failed to complete any more than the initial baseline assessments carried out in the first meeting. These participants were considered to have withdrawn from the project. The numbers in this category in each team in Organisation B cohort 2 are shown in Table 4.1 while overall numbers are shown in Table 4.2



**Table 4-1: Team memberships of participants from cohort 2, Organisation B**

Team Name	Number in team	Number enrolled	Number who withdrew	Number who participated
Fixed Assets	8	8	3	5
Accounts Receivable	10	5	2	3
Consumer Marketing	8	8	4	4
Commissions	2	2	0	2
Legal Team	8	8	3	5
Billing Operations	5	5	1	4
Business Change Team	25	15	9	6
Inbound Call Centre	18	18	10	8
Project Management Team	8	8	6	2
Human Resources	6	6	1	5
Billing Development Project	5	5	2	3
Business Marketing	33	29	29	0
Financial Planning & Analysis	30	21	16	5
Financial Management Team	8	7	4	3
Sponsorship Team	3	3	0	3
Supply Chain	5	5	0	5
Billing Team 2	10	3	0	3
Total	192	156	90	66

**Table 4-2: Age and gender statistics for all participants**

	Number enrolled	Number who withdrew	Number who participated
<b>Organisation A</b>	17	3	14
Male	10	1	9
Female	7	2	5
Mean Age (years) (sd)	38.9 (8.5)	28.6 (8.6)	41.1 (7.0)
Minimum Age (years)	21	21	30
Maximum Age (years)	56	38	56
<b>Organisation B 1<sup>st</sup> cohort</b>	18	5	13
Male	7	3	4
Female	11	2	6
Mean Age (years) (sd)	34.8 (5.8)	38.6 (6.5)	33.3 (5.0)
Minimum Age (years)	26	30	26
Maximum Age (years)	46	46	45
<b>Organisation C</b>	36	17	19
Male	20	9	11
Female	16	8	8
Mean Age (years) (sd)	37.7 (6.7)	37.0 (5.3)	38.3 (7.8)
Minimum Age (years)	24	30	24
Maximum Age (years)	55	48	55
<b>Organisation B 2<sup>nd</sup> cohort</b>	156	90	66
Male	77	40	37
Female	79	50	29
Mean Age (years) (sd)	34.0 (6.9)	33.8 (7.3)	34.2 (6.4)
Minimum Age (years)	20	20	24
Maximum Age (years)	58	58	56
<b>Totals</b>	227	115	112
Male	114	53	61
Female	113	62	51
Mean Age (years) (sd)	35.0 (7.1)	34.4 (7.2)	35.7 (7.0)
Minimum Age (years)	20	20	24
Maximum Age (years)	58	58	56

Note: There were no significant differences in baseline stress measures between those who withdrew from the project and those who took part.

While some individuals withdrew formally due to pregnancy ( $n = 2$ ), resignation from the organisation ( $n = 5$ ), or transfer to a nonparticipating section of the organisation ( $n = 3$ ), the rest simply failed to complete instruments beyond the baseline point. In addition, one complete team in the second cycle from Organisation B withdrew from the project as shown in Table 4.1 after their general manager left and the replacement was not supportive of the project.

## *4.6 Procedure*

### *4.6.1 Interventions*

Two interventions were used in this project, one based primarily on the teaching of somatic stress control techniques and one based primarily on the teaching of cognitive stress control techniques. Participants were referred to as belonging to either the somatic or cognitive training groups, respectively. Training for both of the interventions was carried out over a 4-week period with training sessions being held once a week. This frequency was based on the recommendations of Winzelberg and Luskin (1999). Given that one of the aims of this project was to assess the effectiveness of stress management techniques in the corporate environment, the particular techniques and approaches used were chosen to fit as well as possible within the pressured corporate milieu.

#### *4.6.1.1 Somatic intervention.*

The somatic group were trained in a set of techniques based on Ost's Applied Relaxation method (Ost, 1987). This set of techniques was originally developed for use in the treatment of phobic patients but has also been used in panic disorder and generalised anxiety disorder (Ost, 1988; Ost & Westling, 1995). Payne (2005) classed

Ost's applied relaxation amongst the general group of somatic approaches to relaxation that may prove useful in stress management. As the applied relaxation method is structured as a progressive skill building system, with each step building on the previous learned skill, it was ideally suited to the spaced learning approach adopted for this project.

Applied Relaxation (Ost, 1987) begins with training in the progressive relaxation technique developed by Jacobsen (1938) which uses a preliminary tensing of a muscle group before relaxation of the same muscle group (often referred to as active progressive relaxation). The next training session then develops a more rapid release only version (passive progressive relaxation). These techniques are used to build what Ost refers to as cue-controlled relaxation in which the word "relax" is used as a verbal cue, linked to respiration, to achieve rapid relaxation. This parallels what Payne (2005) referred to as an "on the spot" relaxation technique for stress management. The final stage of Applied Relaxation training involves learning differential relaxation in which the participant learns to relax specific parts of the body while going about their normal daily activities. This again represents an on-the-spot technique according to Payne (2005). For this project the techniques of Applied Relaxation were taught over 4 sessions spaced one week apart. After each workshop all participants were provided with CD recordings of the techniques covered to assist with practice between sessions. It was recommended that participants use the recording daily until they felt able to use the techniques independently. A new CD was issued after each workshop, replacing the previous one, so that participants were encouraged to move on to the next technique. A single revision and reinforcing workshop was also held 4 weeks after the last of the initial training workshops. As no new material was introduced in the revision workshop,

CD recordings were not provided. The agenda and scripts for each of the four training workshops, and the revision workshop, are contained in Appendix 2.

#### *4.6.1.2 Cognitive intervention.*

The cognitive group were trained in a set of techniques based on Fanning's (1988) goal-directed visualisation method. This set of techniques was developed for use in the general area of personal change from the work of Samuels and Samuels (1975), Achterberg (1985), Simonton (1980), Benson (1976), and Coué (1922). Payne (2005) classed goal-directed visualisation amongst the general group of cognitive approaches that may be useful in stress management. A structured programme of training using a spaced learning approach was again adopted for this set of techniques.

Goal-directed visualisation began with training in basic visualisation with the creation of what is usually known as a "special place" (Davis, Eshelman, & McKay, 1988) in the imagination. The next training session developed guided receptive visualisation in which the participants were encouraged to develop images that represent stress and then develop positive images that express the opposite of stress for them. In session three, the positive images developed in the previous session were developed into cues for rapid stress reduction in a manner analogous to the cue controlled relaxation used in the somatic group. In this session the principles of the development and use of affirmations were also taught and participants were asked to develop affirmations for their own use from the next session onwards. The final session integrated the approaches of visualisation, cued stress reduction, and the use of brief affirmations. The last two approaches fall into the category of on the spot techniques according to Payne (2005). As with the somatic group after each workshop all participants were provided with CD recordings of the techniques covered to assist with practice between sessions.

It was recommended that participants use the recording daily until they felt able to use the techniques independently. A new CD was issued after each workshop, replacing the previous one, so that participants were encouraged to move on to the next technique. Also as with the somatic group, a single revision and reinforcing workshop was held four weeks after the last of the initial training workshops. As no new material was introduced at this workshop CD recordings were not provided. The agenda and scripts for each of the four training workshops and the revision workshop are contained in Appendix 3.

#### *4.6.2 Ethical approval and informed consent*

All managers who were initially interested in taking part in this research project were provided with an information sheet that outlined the project, its purpose, and their likely time commitment, and asked to sign a permission form that confirmed their consent to participate in the project if they wanted to go ahead. This was in accord with the requirements of the Auckland University of Technology Ethics Committee and the forms are included in Appendix 4.

#### *4.6.3 Timing and conduct of sessions*

Intervention workshops and data gathering sessions were scheduled at the same time each week for managers from Organisations A and C and the first cohort from Organisation B. An example timetable is given in Appendix 5. For the second cohort from Organisation B workshops were scheduled to coincide with the normal weekly meetings of each team and entered into the meeting agendas by the team secretaries.

Prior to the beginning of the training workshops each group attended an initial meeting at which the baseline psychometric tests (OSI-R and IMC) were administered

and participants were given an outline of their training schedule. Participants were also asked to select the colleague and subordinate whom they wished to have complete the “others” IMC administrations for them, and arrange for these to be completed within the week. These initial meetings were all conducted by the researcher. The training workshops were carried out either by the researcher (for the second cohort from Organisation B) or by a registered psychologist (all other training workshops). The psychologist concerned was given the workshop scripts to familiarise herself with six weeks before the first training workshop sessions were carried out. The psychologist and researcher met before the first workshop session to ensure the psychologist was happy with the workshop structure and scripts and that there was agreement on how the sessions would proceed. The psychologist and researcher also met after each workshop set (cognitive and somatic) that the psychologist conducted to review the sessions in case there were any significant occurrences or participant feedback that may influence either results or future sessions. In no case was there any such occurrence or feedback whether the session was conducted by the researcher or the psychologist. All training sessions for Organisations A and C were carried out by the psychologist as were those for the first cycle in Organisation B. The training sessions for the second cycle in Organisation B were carried out by the researcher. The data gathering (administration of psychometric instruments) was carried out by the researcher in all cases.

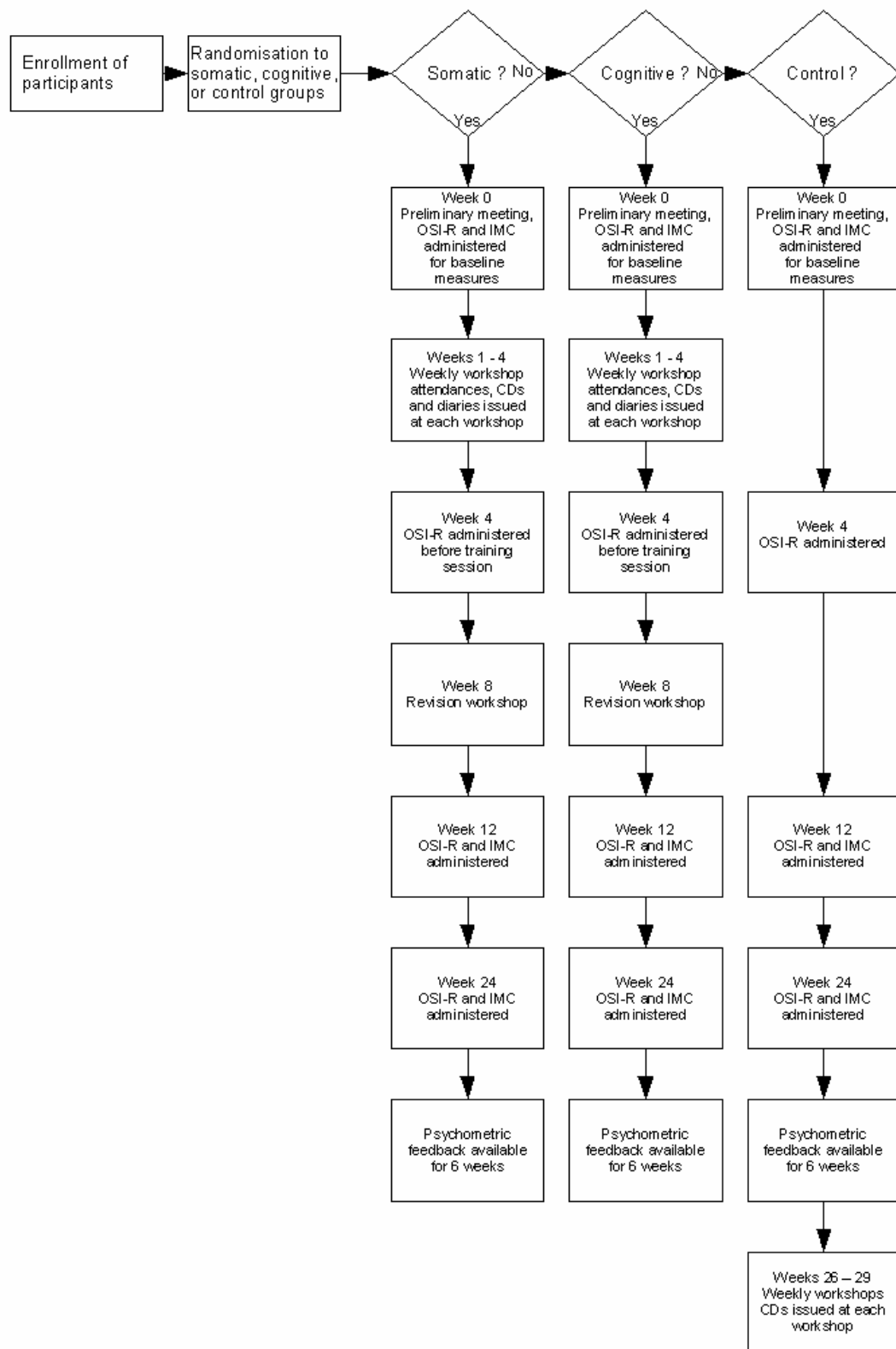
Although each cohort of participants began at a different date each one then followed the same programme and timing as shown in Figure 4.1 which also shows the timings of the psychometric instrument administrations.

Once participants had been randomly allocated to their groups (somatic, cognitive, or control) they were invited to a preliminary meeting (week 0) at which baseline psychometric questionnaires were administered and their individual

programme timetables were issued. All participants were also offered the opportunity to receive feedback from the psychometric instruments used, after the completion of data gathering activities. Each preliminary meeting session consisted only of members of a particular group, (e.g., somatic, cognitive, wait list control). An example of a timetable, with organisational identifiers removed, is given in Appendix 5. The following week intervention groups attended their first training workshop (week 1). At the conclusion of each training workshop participants were given recordings of the technique used in the workshop to assist their practice and learning in the ensuing week until the next workshop. Simple diaries were also issued after each workshop for participants to record their use of the techniques and make any comments they wished to make in order to encourage practice and use of the techniques between training sessions. Examples of the diaries are given in Appendix 6. After week 12, final diaries were collected. Participants were not asked to keep diaries between weeks 12 and 24. In week 26, participants in the wait list control group began their training workshops. Thus, the study consists of two phases, the main study carried out over a 12-week period to assess the main hypotheses stated earlier and a further 12-week follow-up period to assess whether any effects seen at the conclusion of phase one were maintained over a longer term. This timetable is illustrated in Figure 4.1 below.



**Figure 4.1: Flow chart of the intervention timetable**



In week 24 all participants completed their final psychometric assessments and the following week training workshops for the wait list control group began. Two weeks after the final administration, feedback from the IMC and the OSI-R was available to those participants who wished to receive it.

#### *4.7 Instrumentation.*

As outlined earlier, the main questions examined in this study concerned the relative effects of somatic and cognitive stress management techniques on strain as experienced by individuals, and the effect of the use of stress management techniques on the performance of managers in their role as managers in their organisations. For the purposes of this study, self and others' perceptions of the participants' managerial competencies were used as the proxy for managers' performance.

##### *4.7.1 Measurement of stress – Occupational Stress Inventory, Revised Edition*

Stress was assessed using Osipow's (1998) Occupational Stress Inventory, Revised Edition (OSI-R). This is a revised version of the Occupational Stress Inventory, Research Edition (OSI) of Osipow and Spokane (1987).

The OSI-R measures 3 dimensions of occupational stress using 3 individual questionnaires. The 3 questionnaires are; the Occupational Roles Questionnaire (ORQ), which measures occupational stress; the Personal Strain Questionnaire (PSQ), which measures personal strain; and the Personal Resources Questionnaire (PRQ), which measures personal coping resources. These questionnaires can be used together, singly, or in any combination depending on the needs of the user (Osipow, 1998). The constructs of the OSI-R fit well with the P-E Fit model (Edwards et al., 1998) and the Control Theory (Spector, 1998) of occupational stress as described in Chapter 1. The

three questionnaires, and their constituent scales have been shown to have good reliability as judged by Cronbach's alpha scores (Osipow, 1998).

The OSI and OSI-R are based around a conceptual model developed by the authors (Osipow, 1998; Osipow & Spokane, 1987). The model was developed from the P-E-Fit model according to French (1974) in which work stress is regarded as primarily due to a poor fit between the individual and their work environment, and the coping literature as exemplified by Lazarus, Averill, and Opton (1974) and Roskies and Lazarus (1980). The model also incorporates the work of Kahn and others (Kahn, 1974; Kahn, Wolfe, Quinn, & Snoek, 1964; McLean, 1974) on the positive and negative aspects of the social and work roles adopted by individuals in the work place, and Newman and Beehr's (1979) review of strategies for handling stress. The model, as used in the OSI-R, has three main dimensions. The first is that individuals adopt various social and work roles in the workplace and that each of these roles has the potential to be stressful. The second is that strain resulting from the stressful effects of any or all of the roles may manifest in any of four major classes: psychological symptoms, physical symptoms, interpersonal friction, or vocational dissatisfaction. The third is that individuals may employ coping skills in four main ways: engaging in healthy physical activity, using social support systems, employing cognitive strategies, or engaging in recreational activities. The three main aspects of the model are reflected in the three separate questionnaires that comprise the full OSI-R: the ORQ the PSQ and the PRQ. Only the PSQ was used in this study as a measure of individual stress. Two of the four subscales of the PSQ (the PSY and PHS) were also used separately in the study to measure psychological and physiological stress respectively to test the multi-process theory of Davidson and Schwartz (1976)

The PSQ has 4 scales: Vocational Strain (VS), Psychological Strain (PSY), Interpersonal Strain (IS), and Physical Strain (PHS). The alpha scores for these scales are 0.75 for VS, 0.86 for PSY, 0.75 for IS, and 0.85 for PHS. The alpha score for the total PSQ is 0.93 (Osipow, 1998). As the PSQ is designed to measure the strain experienced by the individual as a result of difficulties in the interrelationship between the individual and their work role the questionnaire was used in this study.

The properties of the PSQ are summarised in Table 4.3.

Each of the scales within the 3 questionnaires of the OSI-R is composed of 10 items structured as statements such as *“I find my work interesting and/or exciting”* or *“I’m bored with my work”* to which the individual responds using a scale of 1 to 5 where 1 corresponds to the statement being *rarely or never true*, 2 is *occasionally true*, 3 is *often true*, 4 is *usually true*, and 5 corresponds to the statement being *true most of the time*. Statements are phrased in a mix of both positive and negative forms with reverse scaling used appropriately in scoring. This yields a score range from 10 to 50 for each scale. The instrument is administered using a standard two-part response form designed so that the top copy can be removed by the administrator to reveal the scoring matrix on the page below. The three questionnaires of the OSI-R (ORQ, PSQ, and PRQ) may be used independently. The PSQ, and two of its scales, the PHS and PHY, were used as the measures of stress in this study. The test is untimed (Osipow, 1998).

**Table 4-3 Properties of the OSI-R PSQ scale and its subscales (Osipow, 1998)**

Scale or subscale	$\alpha$ score <sup>a</sup>	Test-retest correlation
<b>PSQ<sup>b</sup></b>	<b>0.93</b>	<b>0.74</b>
<b>VS</b>	<b>0.75</b>	<b>0.59</b>
<b>PSY<sup>b</sup></b>	<b>0.86</b>	<b>0.65</b>
<b>IS</b>	<b>0.75</b>	<b>0.55</b>
<b>PHS<sup>b</sup></b>	<b>0.85</b>	<b>0.67</b>

<sup>a</sup>(Cronbach, 1951) <sup>b</sup> scales used in this study

The OSI-R was the preferred instrument to use in this study as it is structured most directly from the theory base that underpins the study as discussed earlier. The other instruments that were considered for this study, such as the Occupational Stress Indicator (OSI, Cooper, Sloan, & Williams, 1988) and the Job Stress Survey (JSS, Spielberger & Vagg, 1999) have a greater emphasis on assessing or clarifying the sources of stress in organisations rather than measuring strain in individuals. This can perhaps be well illustrated through contrasting the statements reflecting the purpose of the instruments from the respective instruments' manuals as shown in Table 4.4.

**Table 4-4 Statements of purpose for three psychometric instruments, OSI, JSS, and OSI-R**

OSI (Cooper et al., 1988)	JSS (Spielberger & Vagg, 1999)	OSI-R (Osipow, 1988)
<i>"... to clarify the nature of stress in organisations by identifying sources of stress, intervening factors, and the effects of stress on individuals."</i>	<i>"... designed to assess generic sources of occupational stress encountered by men and women in a wide variety of work settings."</i>	<i>"...a concise measure of three dimensions of occupational adjustment: occupational stress, psychological strain, and coping resources."</i>

The OSI-R (Osipow, 1998) and its predecessor the OSI (Osipow & Spokane, 1987) have been used previously to measure the effectiveness of interventions to reduce occupationally induced strain. Higgins (1986) compared two stress management programs to a wait list control group. Significant reductions in the total score for the PSQ were found in comparison to the control group for both programs. In a second study, Smith (1987) showed reductions in strain as measured by the PSQ and increases in coping resources as measured by the PRQ in response to the use of a self-help computer-based stress management program based on cognitive learning theory. In a later study, Kagan, Kagan, and Watson (1995) found that vocational strain (VS) and interpersonal strain (IS) scores from the PSQ questionnaire in the OSI were lower among emergency service workers after participants had completed stress reduction training. For the current study, only the PSQ scale and its constituent subscales were used to assess changes in the strain experienced by participants in comparison to a wait list control group.

#### *4.7.2 Measurement of managerial competency*

The measure of managerial behaviour chosen was the omnibus score for the personal qualities competency cluster of the IMC multi-rater instrument (Saville Holdsworth Ltd., 1993). This cluster has four subscales which have been amalgamated for this analysis: interpersonal sensitivity, flexibility, resilience, and personal motivation. Although not specifically designed to be used in this way, the combined scale has a Chronbach's alpha of 0.74 and good face validity in that it is a linear combination of the four constituent competencies. Partial 360-degree methodology was employed with responses from both the participants themselves (self administration), and peers, and or subordinates (others administration). In planning this research project,

a-priori sample sizing based on a medium effect size,  $\alpha \leq 0.050$  and  $\beta \leq 0.200$  showed that, with the use of the Bonferroni correction for multiple tests, attempting to assess the individual responses to each of these subscales for self, subordinate, and colleague ratings, would require a sample of over 130 with complete data. At that stage this was considered to be an impracticably large sample given cost constraints and an estimated 20% total rate of withdrawal and noncompletion. Therefore the omnibus test was chosen as it incorporates all the scales in a single measure.

The IMC is an instrument designed to measure managerial competencies in the work setting. In common with other management competency models (Boyatzis, 1982), the IMC groups the measured competencies into ‘clusters’ that reflect major areas of management practice. The four descriptive clusters used by the IMC are Managerial Qualities, Professional Qualities, Entrepreneurial Qualities, and Personal Qualities. Each cluster contains 4 competency scores. Each competency score is derived from the responses to 10 test items that contain descriptive statements such as *Copes with disappointments* or *Is effective in oral communication* with a five-point response scale. As the IMC is designed to measure the extent to which the competencies are expressed or employed in the job, the response scale is phrased to reflect the frequency with which the behaviours described by the 160 (4x4x10) statements are used (self administration) or observed to be used (others administration). A score of 1 represents hardly ever, 2 seldom, 3 sometimes, 4 often, and 5 nearly always. The competency clusters and their individual constituent competencies are shown in Table 4.5 and the response items that contribute to each competency are given in Appendix 1.

The IMC is designed for use with 360-degree methodology and has both normative scales that compare the individual to a norm group for final scoring and reporting, and ipsative scales that measure relative strengths and weaknesses within the

individual, for both self and others' assessments. The normative scales have been described earlier. The ipsative scales use the same 160 items arranged in 40 groups of four from each of which groups the respondent chooses one that they regard as most true and one that they regard as least true. This results in a zero-sum scoring system where, as one competency increases in relative strength, so the relative strengths of other competencies must reduce. Assessment of changes in the relative strengths and weaknesses of the various competencies within the individual is not an objective of this research. Rather, differences between intervention and nonintervention groups in competency are of prime interest here. The normative form of the instrument only was therefore used for this study.



**Table 4-5: Relationships between competencies, competency definitions, and competency clusters in the IMC**

Cluster	Competency	Definition
Managerial Qualities	Leadership	Motivates and empowers others in order to reach organisational goals
	Planning & Organising	Organises and schedules events, activities, and resources. Sets up and monitors timescale and plans
	Quality Orientation	Shows awareness of goals and standards. Follows through to ensure that quality and productivity standards are met
	Persuasiveness	Influences, convinces or impresses others in a way that results in acceptance, agreement, or behaviour change
Professional Qualities	Specialist Knowledge	Understands technical or professional aspects of work and continually maintains technical knowledge
	Problem Solving & Analysis	Analyses issues and breaks them down into their component parts. Makes systematic and rational judgements based on relevant information
	Oral Communication	Speaks clearly and fluently and in a compelling manner to both individuals and groups
	Written Communication	Writes in a clear and concise manner, using appropriate grammar, style, and language for the reader
Entrepreneurial Qualities	Commercial Awareness	Understands and applies commercial and financial approaches to work-related issues. Identifies fresh approaches and shows a willingness to question traditional assumptions
	Action Orientation	Demonstrates a readiness to make decisions, take the initiative, and originates action
	Strategic	Demonstrates a broad-based view of issues, events, and activities and a perception of their longer-term impact or wider implications
Personal Qualities	Interpersonal Sensitivity	Interacts with others in a sensitive and effective way. Respects and works well with others
	Flexibility	Successfully adapts to changing demands and conditions
	Resilience	Maintains effective work behaviour in the face of setbacks or pressure. Remains calm, stable, and in control of themselves
	Personal Motivation	Commits self to work hard towards goals. Shows enthusiasm and career commitment

Based on combined self and other scores the instrument has shown good consistency in the normative form with alpha scores in the four scales of the Managerial Qualities domain ranging from 0.84 for the ‘persuasiveness’ scale to 0.91 for the ‘quality orientation’ scale. In the four scales of the Professional Qualities domain, alpha scores range from 0.86 for the ‘problem solving’ and ‘oral communication’ scales to 0.90 for the ‘written communication’ and ‘specialist knowledge’ scales. The Entrepreneurial Qualities domain has four scales with alphas ranging from 0.83 for the ‘strategic’ scale to 0.90 for the ‘creativity and innovation’ scale. The four scales in the Personal Qualities domain have alphas ranging from 0.84 for the ‘interpersonal sensitivity’ scale to 0.88 for the ‘resilience’ scale. Due to the nature of the response items, the second administration of the IMC was delayed to coincide with the week 12 follow-up assessment point of the OSI-R. For each statement in the IMC (see Appendix 1) the response scale is based on the frequency with which a particular behaviour is witnessed. The five-point scale runs from “hardly ever” to “nearly always”. The instructions to raters suggest that, where difficulty is experienced in choosing a response “*respond by indicating their most usual action or behaviour*” (Saville Holdsworth Ltd., 1993). For this reason it was felt that the IMC should not be readministered until any behavioural changes had had time to become normalised in the minds of the respondents, (i.e., any behavioural change had been manifest long enough to be reflected when raters indicated the most usual action or behaviour of the ratees). The second administration of the IMC (12 weeks) is, along with the third administration of the OSI-R, a longer-term follow-up measure than is commonly encountered in studies of the outcomes of SMIs.

Other managerial competency multirater, or 360<sup>o</sup> instruments are available, however, the wide usage of the IMC in New Zealand and Australia (I. Lithgow,

personal communication, Nov, 2002), the availability of local support, and the availability of Australian and New Zealand norm data for the instrument strongly influenced its choice for use in this study. All similar multirater managerial competency instruments though, including the chosen IMC, suffer as far as their use in academic studies is concerned, in that there is a dearth of papers in the academic literature illustrating their use as outcome measures or examining their psychometric properties. One must, therefore, rely on the information available from the commercial test developers when making choices in this area, information which may be difficult to obtain without purchasing the instrument concerned, or a license for its use. The Perspectives on Management Competencies (PMC) (Saville Holdsworth Ltd 1993) has a similar basic structure to the IMC and is based in the same competency model. The PMC, however, requires respondents to assess not only the frequency with which the particular behaviour is exhibited but also the degree to which it is perceived to be important in the particular job situation. This adds no useful information from the perspective of the present study and greatly increases its complexity and the time required for administration. Other instruments such as the Manager Competency Profile (MCP) from Hay McBer are only available with scoring performed by the supplier making it difficult to obtain the scores that underlie the commercial reporting system, and that are required for analysis in a research project of this nature.

#### *4.8 Restatement of the hypotheses in terms relevant to the instruments used*

The main hypotheses for this study can now be more formally expressed in terms of the type and direction of change expected in the two instruments OSI-R and IMC.

1. The practice of stress management techniques will reduce stress in managers as measured by the Personal Strain Questionnaire (PSQ) of the OSI-R.
2. The practice of somatic stress management techniques will show a greater reduction in the Physical Strain Scale (PHY) of the OSI-R than in the Psychological Strain Scale (PSY) of the OSI-R.
3. That the practice of cognitive stress management techniques will show a greater reduction in the Psychological Strain Scale (PSY) of the OSI-R than in the Physical Strain Scale (PHY) of the OSI-R.
4. That the practice of stress management techniques will produce a positive change in the Personal Qualities (PQ) competency self score in the IMC.
5. That the practice of stress management techniques will produce a positive change in the Personal Qualities (PQ) competency cluster subordinate score in the IMC.
6. That the practice of stress management techniques will produce a positive change in the Personal Qualities (PQ) competency cluster colleague score in the IMC.

#### *4.9 Results*

This section begins by examining the first three hypotheses regarding the effects of the use of individual-focussed stress management techniques on strain as measured by the OSI-R, first addressing some issues relating to the data. In particular, these are issues relating to the relatively high rate of withdrawal and incomplete data found in this project, the use of teams as the unit of randomisation in the case of the second cohort of managers from Organisation B, and the measures of effect size that will be reported. The section then continues to examine the last three hypotheses relating to the effect of the use of stress management techniques on self and others' perceptions of competency, as exemplified by the Personal Qualities Competency Cluster from the IMC.

#### *4.9.1 Effect size measures used in this study*

In reporting the statistical findings from this project three measures of effect size have been calculated: eta squared ( $\eta^2$ ), partial eta squared ( $\eta_p^2$ ), and a measure of raw effect size given as the change in mean difference between the intervention and control groups expressed in the scale units from each psychometric instrument. Each of these measures has its advantages and disadvantages both in terms of explanatory usefulness in the context of this project and in terms of their potential use as measures in any future meta analysis which may include data from this study. Where  $\eta^2$  and  $\eta_p^2$  in particular are concerned there has been some controversy and confusion. As reported by Levine and Hullet (2002), a statistical analysis program ("SPSS for Windows (version 9.0)," 1998) reported values that were in fact partial eta squared as eta squared in ANOVA and MANOVA tables when effect sizes were requested. As Levine and Hullet pointed out this had the potential to cause considerable confusion and inaccuracy where these reported effects were used in later meta-analyses as, in most cases, the values of partial eta squared are greater than those of eta squared. In this case the authors were primarily concerned that authors and readers needed to be aware of which measure was being used.

The reasons for the difference in the values of eta squared and partial eta squared lie in their definition and calculation. While partial eta squared represents a measure of that proportion of error plus effect variance that is due to the effect, eta squared represents that proportion of the total variance that is due to the effect. Where one is dealing with a single effect (e.g., in the personal strain analysis in this project), the two measures will be equivalent. Where more than one effect is being measured, however, the two measure different things. Thinking in terms of standardised effect sizes, eta squared might be regarded as the more conservative measure to employ. A

disadvantage, however, is that it is influenced by the number of effects examined within a single analysis. As eta squared cannot sum to more than 1 (i.e., one cannot explain more than 100% of the variance) the more variates that are included the smaller each estimated eta squared becomes. The measure though relatively conservative is therefore heavily influenced by the design of any experiment or analysis it is derived from. Partial eta squared, while it may be considered a less conservative measure, does have the advantage of consistency; it is not changed when variates are added to or subtracted from an analysis. It is for these reasons that it was decided to calculate and report both measures in this work according to the recommendations of Levine and Hullett (2002) so the reader may make up their own mind as to the interpretation of the effect size measures and how they might be employed in any further analysis. For consistency in this study partial eta squared will be used as the main standardised effect size measure, on which judgements will be based, due to its greater consistency across studies examining different numbers of variates.

Perhaps the most easily interpreted effect size measure is the raw mean difference between the control and intervention groups. This allows for interpretation in terms of the instruments used for the initial testing. When expressed as a proportion of the standard deviation of the underlying scale it can be interpreted in terms of Cohen's guidelines for the social sciences (Cohen, 1988). Cohen and others (e.g., Haase, Ellis, & Ladany, 1989) caution against slavish use of these guidelines. In the absence of strong evidence to the contrary (i.e., that effect sizes reported in this area of research are markedly larger or smaller than those reported in most social science research) they may be the best available guide at this time.

#### *4.9.2 Part One: The effects of stress management techniques on personal strain: Tests of hypotheses one, two, and three*

Part one of the results section is concerned with testing hypotheses one, two, and three with regard to the effects of the practice of stress management techniques on personal strain as measured by the relevant scales of the OSI-R. First, the effect on personal strain as measured by the PSQ is examined followed by an assessment of the multi-process theory of Davidson and Schwartz (1976) using the psychological strain (PSY) and physiological strain (PHS) scales of the OSI-R.

##### *4.9.2.1 Issues concerning data integrity for this study*

Prior to examining these hypotheses two issues need to be addressed: the pattern of withdrawals or missing data, and the independence of observations where teams, as opposed to individuals, were the unit of randomisation. An important consideration concerning missing data or withdrawals is whether they occurred due to some underlying difference that may be relevant to the analysis being undertaken, and which may, therefore, bias any resulting conclusions. An important quality to consider here is whether those who withdrew or failed to provide complete data differed significantly on any of the scales of interest in the subsequent analysis. In order to test this, an independent samples t test was carried out for the PSQ (overall personal stress), PSY (psychological stress), and PHS (physiological stress) scales of the OSI-R comparing the baseline measures for those who withdrew or had incomplete data with those who completed all three administrations.

As can be seen from Table 4.6 there are no significant differences in initial strain, on the three scales of interest, between those who withdrew after the first OSI-R administration and those who continued in the project.

**Table 4-6: Independent samples t test of those who participated v. those who withdrew: initial strain measures**

Scale	Means (sd.)		Sig (2 tailed)
	Completed	Withdrew	
Personal Strain	89.7 (22.9)	93.2 (21.6)	0.243
Psychological Strain	23.4 (7.1)	24.0 (6.9)	0.479
Physiological Strain	24.5 (7.2)	25.8 (8.1)	0.207
Completed	n = 112		
Withdrew	n = 115		
Total	n = 227		

Of the 112 participants who continued in the project after the baseline assessments, 44 failed to complete at least one instrument administration, and are not, therefore, included in the MANOVA. As can be seen from Table 4.7 the differences between the complete and incomplete data sets do not reach significance at the  $p = 0.050$  level.

**Table 4-7: Independent samples t test of complete versus incomplete data for initial strain measures of those who remained in the project**

Scale	Means (sd)		Sig (2 tailed)
	Complete	Incomplete	
Personal Strain	85.9 (20.4)	95.1 (25.4)	0.054
Psychological Strain	22.5 (6.3)	24.6 (7.8)	0.148
Physiological Strain	23.3 (6.4)	26.1 (7.9)	0.060
Complete data	n = 68		
Incomplete data	n = 44		
Total	n = 112		

Although the differences in the means for the personal, psychological, and physiological strain results are not significantly different for either comparison (completed versus withdrawn and complete data versus incomplete data) one cannot help but notice that, in all cases, the mean value for those who were, for whichever reason, excluded from the final analysis are higher than those that were included.



Although the tendency is to concentrate on the probability of committing a type 1 error it may be germane in this case to consider the possibility that a type 2 error may be committed here given the consistency of the direction of difference and the importance that might attend a real difference being present. As can be seen from Table 4.8 the estimated probability of committing a type 2 error ( $\beta$ ) is close to 50% for the difference between those who completed the programme and those who withdrew though the effect size is small according to Cohen's  $d$ . For those who had complete data compared to those with missing data the situation is similar with an effect size in the small to medium range.

**Table 4-8: Estimates of Cohen's  $d$  and  $\beta$  for withdrawn and incomplete data**

Scale	Cohen's $d$		$\beta$	
	Withdrew	Incomplete	Withdrew	Incomplete
PSQ	0.157	0.399	0.490	0.462
PSY	0.086	0.296	0.439	0.475
PHS	0.170	0.389	0.495	0.464

Given that the null hypothesis is being accepted in these cases, and that bias in the data set used for analysis may, if it were present, have consequences for the interpretation of the analysis, type 2 error (i.e., that one may be accepting the null hypothesis when it is not true) becomes the issue of concern,.

Despite these concerns, with the estimates given in Table 4.8, one may proceed with interpretation of the analysis with, perhaps, a thought to the possibility that some of the participants reporting higher levels of stress may have been more likely to withdraw from the program. The effect of this as van der Klink et al.(2001) have pointed out, would be to make the detection of effects from stress management more difficult to find.

As discussed earlier, for the last cohort of participants, individuals were assigned to either intervention or wait list control groups on the basis of their membership of already existing groups within the organisation. Although there was little opportunity for interaction during the scripted workshops, and the OSI-R was completed by each individual without consultation with other group members, it may be prudent to attempt to assess whether there was any significant effect on individuals' responses due to their group membership. As Stevens (2002) commented, MANOVA may be highly sensitive to violations of the assumption of independence of observations. In order to assess this, intraclass correlation coefficients (ICC) were calculated for the OSI-R data for participants from each preexisting group that took part in the data gathering for this project. The results are summarised in Table 4.9.

**Table 4-9: Intraclass correlation coefficients for existing teams with two or more participants with complete data**

Team	Number of participants	ICC	Sig.
Business Change	3	-0.111	0.907
Supply Chain Management	4	-0.097	0.894
Billing	3	-0.034	0.492
Accounts Receivable	2	0.161	0.118
Legal Team	5	0.031	0.579
Core Inbound	7	0.039	0.245
Consumer Marketing	3	-0.101	0.839
Financial Management	2	-0.132	0.677
Project Team	3	0.066	0.215
Human Resources	2	-0.035	0.407

As can be seen from Table 4.9 the ICCs are nonsignificant for all groups. This confirms the independence of observations and the remaining data analysis can be carried out using the individual as the analytical unit. The main hypotheses for this thesis were tested over the period to the 12 week assessment, the 24 week assessment having been intended to investigate whether any effect found at 12 weeks was maintained over the longer period.

#### 4.9.3 *Test of hypothesis one: The effect on personal stress as measured by the PSQ*

Multivariate analysis of variance with repeated measures was used to analyse the data. Three measurements of personal strain were used for each individual in the test (cognitive and somatic intervention) and wait list control groups; the week 0 preintervention baseline measure, the week 4 immediate postintervention measure, and the week 12 follow-up measure. The first hypothesis to be tested was that the practice of stress management techniques will reduce strain in managers as measured by the PSQ. The somatic and cognitive intervention groups were combined into a single intervention group, consistent with the original aim of testing the effect of somatic or cognitive interventions, giving a balanced design with intervention ( $n = 35$ ) and wait list control ( $n = 29$ ).

Examination of the univariate distributions for each set of measurements revealed one extreme outlier ( $> 3$  s.d. from the set mean) which was excluded from further analysis. Initial multivariate analysis of the data yielded a significant value for Box's M suggesting that the covariance matrices for the dependent variables were not equal across the groups. The multivariate distribution was therefore examined for outliers by calculating the Mahalanobis Distance for each case. Three cases with Mahalanobis Distances greater than the critical value of Chi squared at  $p = 0.001$  were found. These were excluded from further analysis as recommended by Tabachnick and Fidell (2007). As can be seen from Table 4.10, after the removal of multivariate outliers, reanalysis of the data set showed nonsignificant values for Box's M, ( $p = 0.315$ ), Mauchly's test of sphericity ( $p = 0.701$ ), and for Levene's test for equality of error variances (PSQ1,  $p = 0.501$ ; PSQ2,  $p = 0.188$ ; PSQ3,  $p = 0.763$ ).

**Table 4-10 MANOVA Diagnostics for test of hypothesis one**

	BOX's M	Mauchly's Test of Sphericity	Levenes Test for Equality of Error Variances
<b>Overall Measure</b>	<b>0.315</b>		
<b>PSQ Overall</b>		<b>0.701</b>	
<b>PSQ Week 0</b>			<b>0.501</b>
<b>PSQ Week 8</b>			<b>0.188</b>
<b>PSQ Week 12</b>			<b>0.763</b>

The overall multivariate analysis showed a significant effect for the time\*treatment interaction ( $p = 0.005$ ) according to Wilkes' Lambda with an effect size, as measured by partial eta squared, of 0.169. This suggests that 17% of the effect plus error variance is attributable to the time\*treatment interaction effect. As the assumptions regarding sphericity, multivariate normality, and equality of error variances have been met, the within subjects statistics for the time\*treatment effect may be examined. The time effect was also significant according to the multivariate analysis ( $p = 0.025$  according to Wilks' Lambda), however, as this simply suggests that there are significant differences over time irrespective of the intervention it is not of interest in this context.

As can be seen from Table 4.11 the F value for the PSQ time\*treatment interaction is highly significant suggesting that using stress management techniques has a real effect on personal strain as measured by the PSQ. The within subjects effect size as measured by partial eta squared ( $\eta_p^2$ ), and eta squared ( $\eta^2$ ), lies in the medium range according to Cohen (1988) in terms of the model variance explained by the effect. The change in raw score mean differences between the intervention and control groups pre and post intervention (i.e., between the baseline measure,  $t_1$  and the post intervention measure at week 4,  $t_2$ ) represents a movement of -0.44 s.d. compared to the

standardisation norms for this instrument. This is also close to the +/- 0.5 s.d. change defined as a medium effect (Cohen, 1988). This change was also in the direction specified in hypothesis one and is maintained to the week 12 assessment point ( $t_3$ ).

**Table 4-11: Within subjects effects and mean differences**

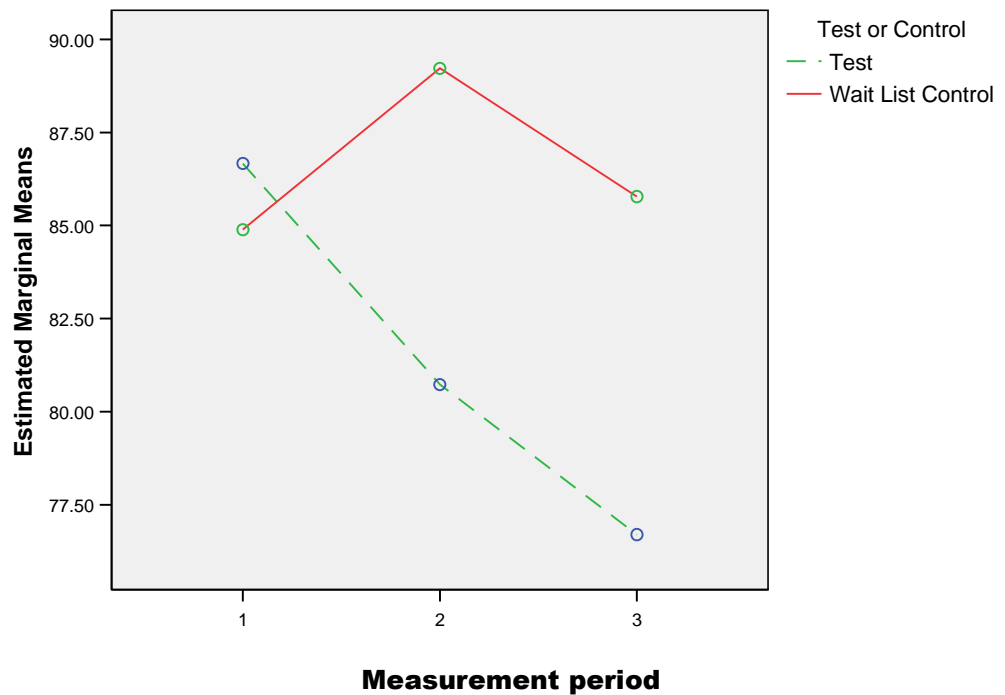
Measure and effect	F	Significance	$\eta_p^2$	$\eta^2$	Change in raw score mean difference $t_1 - t_2$	Change in raw score mean difference $t_1 - t_3$
PSQ Time*treatment	5.673	0.002 <sup>a</sup>	0.089	0.089	-10.273	-10.859
PSQ time	3.572	0.031 <sup>b</sup>	0.058	0.058		

a = single tailed test

b = two tailed test

The profile plot given in Figure 4.2 also illustrates a clear interaction effect between the baseline and post intervention assessments, and that the separation between the control and intervention groups has been maintained at the week 12 follow-up assessment (time 3 on the plot).

**Figure 4.2: Profile plot for test of hypothesis one, estimated marginal means of the Personal Strain Questionnaire (PSQ)**



Thus, the hypothesis that “the practice of stress management techniques will reduce strain in managers as measured by the Personal Strain Questionnaire (PSQ) of the Occupational Stress Inventory” may be accepted.

#### 4.9.4 *Test of hypotheses two and three: Assessment of the multi-process theory of Davidson and Schwartz (1976)*

In order to test hypotheses two and three as an assessment of the multi-process theory of Davidson and Schwartz (1976), and to see if any difference in overall stress response was attributable to the different interventions, analysis of the PSQ and two of its subscales PSY (measuring psychological strain) and PHS (measuring physiological strain) was carried out with the somatic and cognitive interventions entered as separate data sets. This gave an unbalanced design with somatic  $n = 15$ , cognitive  $n = 18$  and wait list control  $n = 27$ . As can be seen from Table 4.12, Box’s  $M$  was again nonsignificant as were Mauchly’s test and Levene’s test.

**Table 4-12: MANOVA Diagnostics for test of hypotheses two and three**

	BOX's M	Mauchly's Test of Sphericity	Levene's Test for Equality of Error Variances
Overall Measure	0.174		
PSY Overall		0.788	
PSY Week 0			0.172
PSY Week 4			0.204
PSY Week 12			0.204
PHS Overall		0.939	
PHS Week 0			0.229
PHS Week 4			0.387
PHS Week 12			0.372

In this case, the time\*treatment interaction effect was significant ( $p = 0.020$ ) according to Wilkes' Lambda as was the time effect ( $p = 0.004$ ). Once again as the time effect simply suggests that there were significant differences over time irrespective of the intervention it is not of interest in this context. As the assumptions regarding sphericity, multivariate normality, and equality of error variances have been met, and the multivariate statistics are significant, the univariate statistics may be examined. As can be seen from Table 4.13 the time\*treatment interaction effects for both the PSQ and the PSY are significant, allowing for correction by the Bonferroni inequality for three variables at  $\alpha = 0.050$  (adjusted  $p = 0.016$ ). The effect for the PHS scale does not reach significance but is still in the direction that represents a reduction in stress in response to the use of stress management techniques, as are the responses of the PSQ and PSY scales. This is consistent with the previous results but is not surprising as the PSY and PHS are two of the subscales of the PSQ.

**Table 4-13: Univariate results for PSY, and PHS showing significance and effect sizes**

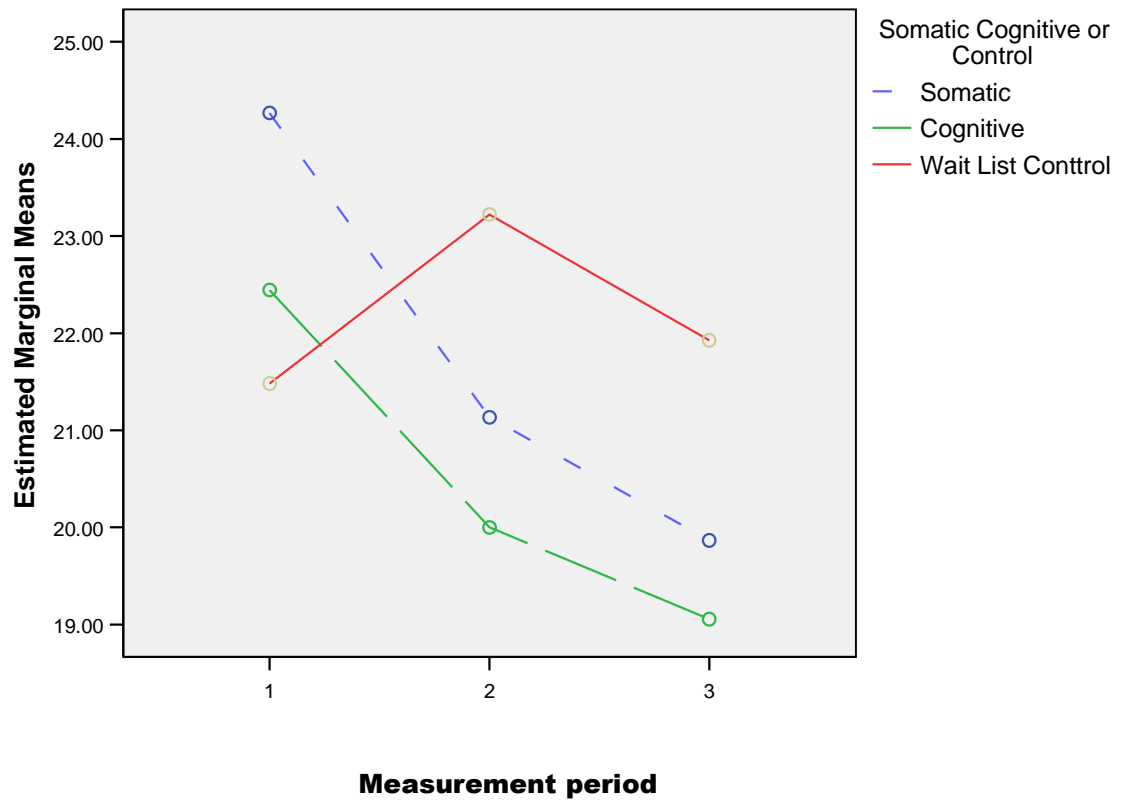
Measure and effect	F	Sig	$\eta_p^2$	$\eta^2$	Change in raw score mean difference $t_1 - t_2$	Change in raw score mean difference $t_1 - t_3$
PSY Time*treat	4.493	0.001 <sup>a</sup>	0.136	0.012	S -4.875 C -4.185	-4.845 -3.833
PHS Time*treat	1.208	0.156 <sup>a</sup>	0.041	0.004	S -2.355 C -2.444	-2.429 -2.594

a = single tailed, S = somatic techniques, C = cognitive techniques

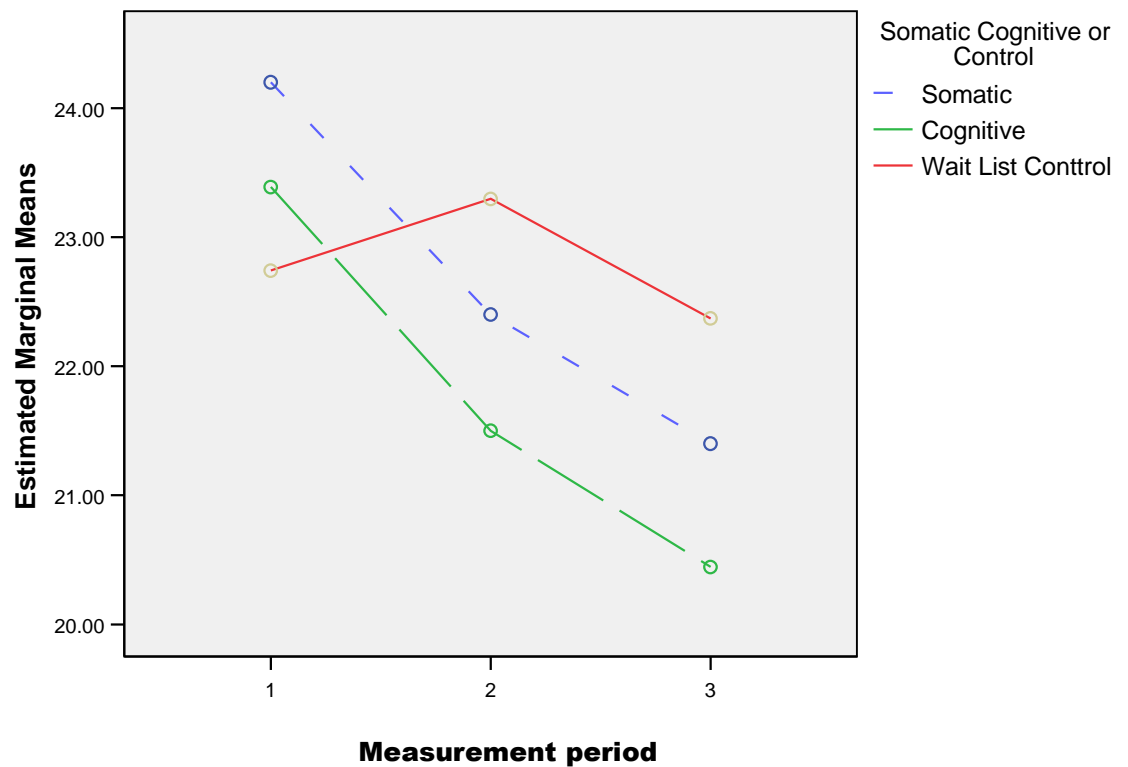
What is highly noteworthy, however, is the relative magnitude of the changes in raw score differences between the two intervention group results and the wait list control group results. As can be seen from Table 4.13, for both the baseline to week 4 ( $t_1$  to  $t_2$ ) change and the baseline to week 12 ( $t_1$  to  $t_3$ ) change the differences between test and control for the PSY and PHS scales are in the opposite direction from that predicted by the multi-process theory (Davidson & Schwartz, 1976). For example, for the PHS scale the decrease in measured strain relative to the control group is greatest for the cognitive intervention group, while for the PSY, psychological strain scale, the decrease in measured strain relative to the control group is greatest for the somatic intervention group. The difference between the cognitive and somatic intervention group differences in scale response are small, and the fact that they are both in the opposite direction from that predicted renders them nonsignificant as far as the hypotheses regarding the multi-process theory are concerned. The profile plots given in Figures 4.3 and 4.4 also clearly show that the two interventions parallel each other over the time period.



**Figure 4.3: Profile plot for test of hypothesis two, estimated marginal means of psychological strain (PSY)**



**Figure 4.4: Profile plot for test of hypothesis three, estimated marginal means of Physical Strain (PHS)**



Post-hoc tests of the two interventions for each scale given in Table 4.14 confirm that there is no significant difference between the treatments.

**Table 4-14: Post hoc tests of the difference between somatic and cognitive intervention groups**

Measure	Post-hoc comparison (Tukey)	Significance
PSQ	Somatic v Cognitive	P = 0.742
PSY	Somatic v Cognitive	P = 0.793
PHS	Somatic v Cognitive	P = 0.896

Thus there would appear to be no significant difference between the somatic and cognitive approaches in their effect on overall strain as measured by the PSQ.

While the specific responses in psychological and physiological strain relative to the

different interventions that are predicted by the multi-process theory (Davidson & Schwartz, 1976) are not demonstrated, it would appear that both approaches may be equally effective and that there is no evidence from the current data for specific effects relating to the approach used. Thus, hypotheses 2 and 3, which state that “the practice of somatic stress management techniques will show a greater reduction in the Physical Strain Scale (PHY) of the OSI-R than in the Psychological Strain Scale (PSY) of the OSI-R” and that “the practice of cognitive stress management techniques will show a greater reduction in the Psychological Strain Scale (PSY) of the OSI-R than in the Physical Strain Scale (PHY) of the OSI-R” must be rejected.

#### *4.9.5 Test of hypotheses four, five, and six: The effects of stress management techniques on management competencies*

In a similar manner to the analysis for hypotheses 1, 2, and 3 the data from the two intervention groups was combined into one single intervention group for this analysis. In this case, two measures have been taken for each individual in each group, a preintervention baseline measure and a follow-up measure eight weeks after the end of the intervention period. This measure was taken at the same time as the third measure of the OSI-R. Multivariate analysis of variance with repeated measures was used with an intervention group of  $n = 45$  and a wait list control group of  $n = 30$ . No outliers were revealed for the variables of interest in the component univariate distributions or in the multivariate distributions according to the criterion of the Mahalanobis distance being less than the critical value of Chi squared at  $p = 0.001$ . As can be seen from Table 4.15, Box’s M was nonsignificant ( $p = 0.477$ ), and Mauchly’s test is not relevant, as there are only two measures per group in this analysis and sphericity is not an issue (Tabachnick & Fidell, 2007). Levenes test showed no significant difference in error variances.

**Table 4-15 MANOVA Diagnostics for test of hypotheses four, five, and six**

	BOX's M	Mauchly's Test of Sphericity	Levenes Test for Equality of Error Variances
<b>Overall Measure</b>	<b>0.477</b>		
<b>IMC Personal Qualities overall</b>		<b>n/a</b>	
<b>IMC Personal Qualities self week 0</b>			<b>0.750</b>
<b>IMC Personal Qualities self week 12</b>			<b>0.380</b>
<b>IMC Personal Qualities subordinate week 0</b>			<b>0.464</b>
<b>IMC Personal Qualities subordinate week 12</b>			<b>0.562</b>
<b>IMC Personal Qualities colleague week 0</b>			<b>0.297</b>
<b>IMC Personal Qualities subordinate week 12</b>			<b>0.834</b>

The overall multivariate statistics showed a significant effect for the time\*treatment interaction ( $p = 0.004$ ) according to Wilkes' Lambda with an effect size of 0.122 as measured by partial eta squared and a nonsignificant effect for time ( $p = 0.213$ ). This suggests that changes in the mean difference between intervention and control groups were due to the differential effect of the intervention over the time period employed. As the assumptions for use of the MANOVA appear to be met and the

multivariate statistics were significant the univariate statistics for the time\*treatment interaction may be examined.

As can be seen from Table 4.16, all three measures of the Personal Qualities competency cluster (self, subordinate, and colleague) have shown movement in a direction consistent with the hypothesis that using stress management techniques will improve performance in areas included in this competency. Although the subordinate measure fails to reach significance at the  $p = 0.050$  level, both the self ( $p = 0.008$ ) and colleague ( $p = 0.013$ ) measures are significant at  $p = 0.050$  allowing for correction by the Bonferroni inequality for three variables at  $\alpha = 0.050$  (adjusted  $p = 0.016$ ). This suggests that the effect is not only apparent in the more usually employed self-report format but that, in this context, sufficient observable behaviour change occurred for it to be apparent to others in the workplace. Although the effect sizes as measured by eta squared are small, they account for a positive shift in raw scale values equivalent to almost one third to a little less than one half standard deviation of the instrument. This places the effect, measured by this criterion, in the medium range (Cohen, 1988).

**Table 4-16: Table of univariate results for time\*treatment effect showing significance, effect size, and mean differences for the IMC Personal Qualities Competency**

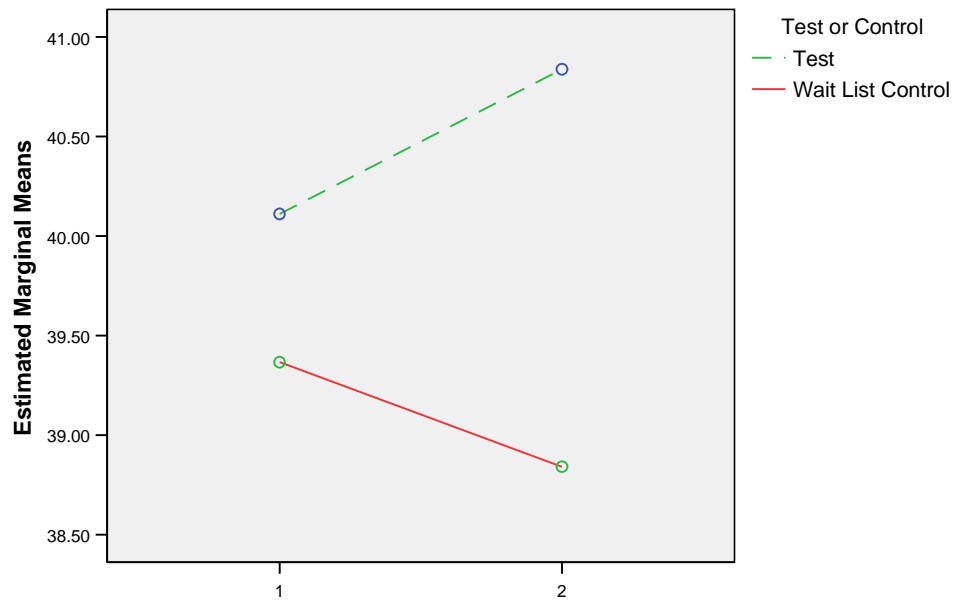
Respondent	F	Significance single tailed	$\eta_p^2$	$\eta^2$	Change in raw score mean difference $t_1 - t_2$	Change in raw score as proportion of instrument s.d.
Self	6.108	0.008	0.077	0.013	1.25	0.29
Subordinate	2.407	0.063	0.032	0.012	1.22	0.28
Colleague	4.976	0.013	0.064	0.029	1.91	0.44

The final hypotheses of this study, therefore, may be regarded as partially accepted and partially rejected. The hypotheses that “the practice of stress management techniques will produce a positive change in the Personal Qualities competency cluster

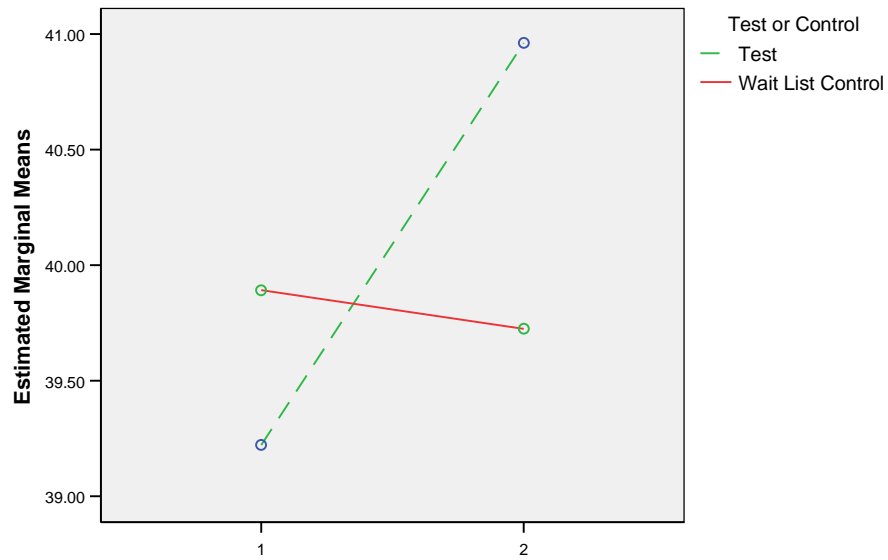
self score in the IMC” may be accepted as can the hypothesis that “the practice of stress management techniques will produce a positive change in the Personal Qualities competency cluster colleagues score in the IMC”. The hypothesis that “the practice of stress management techniques will produce a positive change in the Personal Qualities competency cluster subordinates score in the IMC” must remain in some doubt as the relevant statistic has failed to reach significance at the  $p = 0.050$  level ( $p = 0.016$  using the Bonferroni correction for 3 simultaneous measures).

The profile plots given in Figures 4.5, 4.6, and 4.7 clearly illustrate the patterns and relative size of the changes in mean difference for the variables. In summary, these results appear to provide strong evidence for a real effect on behaviour consequent to the use of stress management techniques that is relevant to a managers’ performance (competency), that is observable by others, and that is relevant to organisational performance.

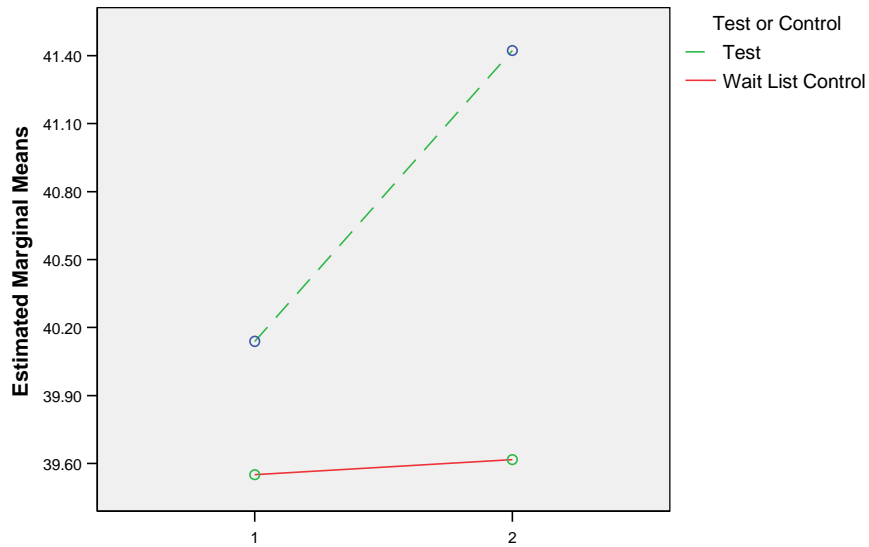
**Figure 4.5: Profile plot for test of hypothesis four, estimated marginal means of Personal Qualities self assessment**



**Figure 4.6: Profile plot for test of hypothesis five, estimated marginal means of Personal Qualities colleague assessment**



**Figure 4.7: Profile plot for test of hypothesis six, estimated marginal means of Personal Qualities subordinates' assessment**





#### *4.10 Longer-term follow-up*

An important aim of this research project was to address a relative lack in the literature of empirical studies that include longer-term follow-up of any effect of stress management interventions (van der Hek & Plomp, 1997). Although this issue has been, to some extent, addressed in this study through the 3rd (week 12) administration of the OSI-R and the concurrent 2nd administration of the IMC it was intended to complete a further longer-term follow-up assessment of both stress and performance. To this end the planned program included final assessments using both the OSI-R and IMC instruments in week 24, 12 weeks after the completion of the intervention. As has been alluded to earlier, however, a high rate of withdrawal and failure to complete all instrument iterations was experienced during this project. Unfortunately, when the time came to request final follow-up measurements, the majority of those who had completed up to this time proved either unavailable or unresponsive. This was especially the case where the IMC multirater instrument was concerned, presumably due to the additional effort required to re-enlist the assistance of the colleague and subordinate as well as themselves. The effect of this major final withdrawal has been such as to reduce the available data set to a size too small to provide meaningful information relating to the longer-term effectiveness of this intervention. Herein perhaps lies part of the explanation for the dearth of such follow-up studies in the literature.

In the case of the IMC, only six participants had full data for all three assessment points. This being far too small a data set to carry out any meaningful analysis (there are insufficient degrees of freedom to calculate the multivariate statistics), no direct conclusion can be drawn regarding the longer-term effect of the stress management interventions on the managers' competency.

The situation is only a little better for the data from the OSI-R. In this case there are 31 respondents with complete data for all four assessment points, 14 from the combined intervention groups and 17 from the wait list control group. As can be seen from Table 4.17 the time\*treatment interaction effect fails to reach significance at the  $p=0.050$  level.

**Table 4-17: Long-term follow-up measures for PSQ, significance, effect size, and mean differences**

	F	Sig $\alpha$	$\beta$	$\eta_p^2$	$\eta^2$	$t_1-t_2$	$t_1-t_3$	$t_1-t_4$
PSQ time*treatment	1.803	0.077	0.546	0.059	0.059	-4.033	-6.201	-10.504

The effect size is also in the small range (Cohen, 1988). The  $\beta$  of 0.546 suggests a 55% chance that the null hypothesis is being falsely accepted which is a clear indication of the inadequacy of the sample size in this instance. It is interesting to note, however, that the effect is in the direction predicted by hypothesis one and confirmed by the  $t_3$  point in this study. The magnitude of the mean difference between the intervention and wait list control groups is also increasing from week 0 - week 4 ( $t_1 - t_2$ ) through to week 0 - week 24 ( $t_1 - t_4$ ). Given the consistency of this pattern with that confirmed with the larger sample in phase one of the study, it is tempting to conclude that there is evidence for a longer term effect of stress management training on individual stress as measured by the PSQ scale of the OSI-R. Confirmation or disconfirmation of such a tempting conclusion must, however, await further studies.

A major source of difficulty and frustration in carrying out this research project has been the continuing difficulty in retaining participants in the project and obtaining complete data from those who do remain. This should not, perhaps, have been entirely surprising as van der Klink et al. (2001) reported pretest to post-test dropout rates of up

to 40% in the studies they reviewed, most of which unlike the current study had no postintervention follow-up. In order to attempt to provide some information on the possible causes of the high attrition rate in this project, and to achieve some further insight into the meaning of the results from the quantitative analysis, a post-intervention qualitative study was carried out (see Chapter 5). This is the subject of Study Two in this thesis.

## *4.11 Discussion*

### *4.11.1 The results of Study One in the context of current literature*

This study was intended to address some specific gaps in the available evidence for the effects of individual-focussed stress management interventions on stress and performance, particularly in managers in commercial corporate settings. The findings from the first part of Study One are in line with previous work which has shown positive benefit from individual-focussed SMIs for both physiological and psychological aspects of stress (Marine, Ruotsalainen, Serra, & Verbeek, 2006; Shimazu et al., 2006; van der Hek & Plomp, 1997; van der Klink et al., 2001). The current study adds to the current knowledge in this area in that the outcome measure employed (OSI-R, Osipow, 1998) was designed specifically to assess personal stress, primarily according to a model derived from the P-E Fit model (French et al., 1974). This is in contrast to the more commonly used instruments, which tend to be those designed to measure aspects of the stress response (e.g., anxiety, depression, burnout, self-esteem) rather than personal stress *per se*. Although this is not the first time this instrument (OSI-R) has been used as an outcome measure in the assessment of SMIs (Higgins, 1986; Kagan et al., 1995), it is important to have confirmed that the benefit of using stress management techniques is found in managers working in commercial

corporate organisational settings as well as in the more commonly encountered health or education settings.

This first part of Study One also confirms the findings of Gill et al. (2004) that there appears to be no detectable difference in the response to somatic or cognitive techniques when measures designed to assess primarily somatic or cognitive stress changes are used. A contrast between the earlier Gill et al. study and this current work lies in the setting; corporate managers rather than student volunteers, and in the measure employed, psychological and physiological stress measures rather than cognitive and somatic anxiety measures. Thus, the first part of study one confirms that the two techniques employed in this study are both effective in reducing personal stress in individuals and that there appears to be no difference between them in the way, or in the degree to which, they have an effect on managers working in commercial corporate settings. This latter finding goes some way to addressing the concerns of van der Hek and Plomp (1997) that there was little knowledge regarding the effectiveness of the various subcomponents that usually go to make up SMIs in practice. The individual focussed somatic techniques used here, based on Ost's (1987) applied relaxation, and the cognitive techniques, based on the work of Fanning (1988), have been clearly demonstrated to be effective in reducing stress relative to a wait list control group at both immediate post intervention, and follow-up measures. The latter point is germane as follow-up beyond immediate postintervention assessment of SMI effectiveness has also been relatively rare (De Frank & Cooper, 1987; Newman & Beehr, 1979; van der Hek & Plomp, 1997; van der Klink et al., 2001), and despite recent improvements (Giga et al., 2003), continues to be so.

The improvement in stress measures recorded in this study was maintained to the week 12 follow-up assessment. A further longer-term follow-up assessment at week

24 failed to reach statistical significance, probably due primarily to a large reduction in sample size, but the mean score difference between intervention and wait list control groups remained fairly constant at approximately -10 across the three postintervention assessment intervals. It would appear, therefore, that two of the components commonly employed in comprehensive SMIs have been validated as having positive effects on personal stress that persist beyond the immediate postintervention period.

Part two of Study One sought to address the lack of direct evidence for the presumed positive effect of SMIs on the performance of individuals in the workplace. Very few studies have made direct measurements of any performance increment resulting from SMIs, though van Veldhoven (2005) and Cincotta (2006) have examined the relationship between aspects of stress and performance at the more aggregate level. In these latter two studies, however, SMIs were not involved. The findings from part two of Study One do provide strong evidence for a positive effect of the use of stress management techniques on managerial competency as perceived by both the managers themselves and by others in the workplace. The competency construct used in this study, the personal qualities construct from the IMC, relates primarily to aspects of communication and interpersonal relationships expressed in the workplace. As shown by Sala and Dwight (2002) the expression of management competencies in personal and interpersonal relationships was positively related to objective measures of organisational performance, especially according to others' assessments using a multirater competency assessment. Though management competency assessments may be regarded in general as surrogate measures of managerial performance, studies have frequently shown clear correlations between competency assessments and other measures of performance that are well accepted in management practice (e.g., formal performance appraisal by superiors, assessment centre outcomes) (Atkins & Wood,

2002; Beehr et al., 2001; Johnson & Ferstl, 1999; Nilsen & Campbell, 1993b). Boyatzis (1982) originally developed his management competency model as a means of distinguishing superior from average and poorly performing managers. Subsequent similar competency models have shared this basic aim of attempting to define and measure behaviours that relate to superior managerial performance including the model underlying the IMC used in this study (Saville Holdsworth Ltd., 1993), and later work has confirmed the ability of multirater competency assessments to differentiate superior performing managers from others (Church, 2000). For the current study, assessments of competency were obtained from the participants and also from the participants' colleagues and subordinates. All three assessment sources showed positive changes in competency in the intervention group relative to the wait list control group. For the self and colleague appraisals the change was equivalent to 63% and 96%, respectively of the sten score used in the interpretation of this instrument and was statistically significant. The subordinate assessments, while of similar magnitude to the self assessments in terms of both effect size and percent of raw score (61%), failed to reach statistical significance. As Church (2000) stated, 50% of a scale point is a commonly used rule of thumb for interpreting the significance of competency assessments, (i.e., a change of 50% or more of a scale point, in this case a sten score, may be considered to be significant in a practical sense). Thus the relative change in assessed competency between the intervention and control group was not only statistically significant for the self and subordinate measures but also of practical significance in terms of the normal interpretation of multirater competency instruments.

As Koontz (1972), Kotter (1982), and Mintzberg (1975) have argued theoretically, and Thomas (1988) and Huselid (1995) have shown empirically, the performance of managers is important to the performance of the organisations in which

they are employed. In addition, as has been well illustrated (ASCC, 2007; Atkinson, 2000a; Bejean & Sultan-Taieb, 2005; Cartwright, 2000; Midgley, 1997) from financial and from health and safety perspectives, the alleviation of occupational stress should provide good returns to organisations that are able to achieve that goal. The employment of individual-focussed stress management techniques, somatic or cognitive, based on the findings of this study would, therefore, seem to be a worthwhile investment for organisations.

#### *4.11.2 Strengths and limitations of Study One*

Study One conforms to Murphy's (1996) top level (5 star) criterion in that it employs an experimental protocol with a randomised control group. This increases the confidence one may have that the effects found for the intervention are due to the intervention, with less potential confounding from other organisational influences. A further strength of Study One has been the follow-up measure available for stress, and also the fact that the competency measures were taken at the follow-up assessment rather than immediately postintervention. This goes some way to confirming that the effects of individual stress management training have some level of persistence and that performance (competency) changes were also detectable at least at week 12. In terms of the sample, all participants were managers employed in commercial corporate environments in both Australia and New Zealand. The majority were employed by the same multinational telecommunications company so that, although perhaps relatively broad in terms of geographic coverage, the sample is heavily concentrated in a single company and industry. In terms of sample homogeneity, this may represent a strength for this study. In terms of generalisability, however, this may also represent a limitation

in that one cannot necessarily assume that this sample is representative of the wider population of corporate managers.

A further limitation from the point of view of sampling was the large number of participants who withdrew from the project after the first assessments coupled with the high proportion of participants who had incomplete data and were not, therefore, able to be included in the analysis. Although there does not appear to have been any statistically significant difference between those who withdrew or had incomplete data on measures of interest, one cannot help but ponder what underlying, and nonassessed, qualities may have contributed to these two groups' noncompletion of the experimental protocol. The use of two facilitators for the training workshops may also represent a limitation as this is fully confounded with possible cohort effects. All of the sessions for Organisation B cohort two were carried out by the researcher while all others were carried out by a registered psychologist.

A further limitation exists in that no effort was made to employ any form of "blinding" in this study. As participants interacted with each other on a regular basis any attempt to hide the fact that two intervention techniques were being used, or that one group was a wait list control would have rapidly proven futile. Participants were therefore informed at their initial preparatory sessions that they were members of either one of the two intervention groups or members of the wait list control group. Wait list control group members were told that they would be trained in the stress management techniques after the experimental period. It is possible that to some degree a Hawthorne Effect (Mayo, 1933) may have contributed to the findings. It is also possible that a variant of the Reverse Hawthorne Effect (Zdep & Irvine, 1970) in which those who are aware they are members of a nonintervention control group increase their efforts in the assumed direction of improvement, may be at play. The only real conclusion one can



draw in a nonblind control situation, such as existed for Study One, is that confounding influences that are unknown may have contributed to the findings, though this situation is still considerably to be preferred to having no control group for comparison.

It would have given further credence to these findings had it been possible to complete the planned longer-term follow-up measures (week 24) of both stress and performance. The continued attrition among participants rendered this impossible however, as the sample numbers remaining at the final assessment point were too few for meaningful analysis as far as the competency measure was concerned, and too few to give reasonable power for the final stress measurements. As has been stated earlier, in order to attempt to provide some information on the possible causes of the high attrition rate in this project, and to achieve some further insight into the meaning of the results from the quantitative analysis, a postintervention qualitative study was carried out. This is the subject of Study Two in this thesis (see Chapter 5).

In summary Study One has provided strong evidence that the use of either cognitive or somatic stress management techniques can reduce personal stress in managers working in a corporate environment, as measured by the PSQ scale of the OSI-R. Perhaps more importantly, this study also provides evidence that the use of either cognitive or somatic stress management techniques can produce a positive change in managerial behaviour that is both relevant to superior performance and is observable by others in the organisation.

## 5 Chapter Five: Study Two

### 5.1 *Method*

A descriptive qualitative approach was used for this study to complement and further elucidate the findings from Study One, and to provide some explanation for the relatively large withdrawal rate and incomplete data among participants reported in Study One.

#### 5.1.1 *Statement of research questions for Study Two*

The research questions being investigated in Study Two are:

- What is the workplace like in terms of demand, interpersonal interaction, and change?
- How, and to what extent did participants use the stress management techniques?
- What benefit did participants perceive from the use of the stress management techniques?
- What reasons may have contributed to the withdrawal of participants from this research program?
- Do managers perceive any change in their behaviour as a result of using the stress management techniques?
- How do managers define stress?

### *5.1.2 Participants*

Participants were 14 managers who had taken part in Study One. Nine were from the second cohort from Organisation B, (4 females and 5 males), and 5 were from Organisation C, (3 females and 2 males). This gives an overall gender mix of 7 males and 7 females. Of the sample, 7 completed the whole of Study One including a complete set of psychometric instrument administrations, 2 withdrew informally (i.e., without notice) prior to the second psychometric administration in Study One, and 5 completed all training workshops but did not complete any of the psychometric instruments. All participants completed the 4 training workshops. Participants from Organisation A and the first cohort from Organisation B were not approached for interviews as Study Two was not originally conceived as part of the research project, and the necessary ethical approval for the interview component was not granted until after the completion of their Study One interventions.

### *5.1.3 Procedure*

Participants were recruited through e-mailed requests to take part in follow-up interviews after the end of week 26 of the Study One protocol. A total of 66 e-mail invitations were sent to all participants from either Organisation C, or the second cohort from Organisation B, known to be still employed by those organisations. Of these, 19 invitations were sent to participants from Organisation C and 47 to participants from Organisation B. All e-mail requests were followed up by telephone, usually resulting in voice mail messages being left. Seven participants from Organisation C replied accepting the invitation and arrangements were made to carry out the interviews over a 2-day period at the organisation's head office in Sydney. Unfortunately, 2 of the participants were unable to attend the scheduled interviews due to unexpected work

commitments so 5 interviews were carried out. No other replies were received from Organisation C, either to repeat e-mails or to voice mail messages left prior to the deadline for arranging the interview schedules. Fourteen participants from within Organisation B replied, 3 declining to take part and 11 accepting. Of the 11 who accepted 2 later had to withdraw, one due to an overseas transfer within the organisation, and one due to increased work commitments. No other replies were received from participants within Organisation B, either to repeat e-mails or to voice mail messages left prior to the deadlines for arranging the interview schedules.

Interviews were carried out by the researcher either in Sydney or in Auckland at the offices of the employing organisation for each participant. The interviews were carried out in meeting rooms at the offices rather than in the participants' personal workspaces. The use of specifically designated meeting rooms is the usual practice for both organisations for either formal internal meetings or any meeting with external parties. In 3 cases, participants in Auckland expressed a desire to use a less formal setting and the interviews were carried out in the organisations' cafeteria. There appeared to be no evidence of increased or decreased openness of response in either setting. Notes were taken by the interviewer during the interviews to record gestures or expressions that may have modified interpretation of the audio record by adding a further dimension to the communication that occurred at the time. Notes were kept brief to allow the interviewer to concentrate on what was being said and to appropriately question and probe. A semi-structured interview format (Flick, 2006) was used with several standard questions maintaining a coherent structure between respondents while allowing a relatively free discussion to develop where respondents were so inclined. All interviews were recorded to mini disk for later transcription and analysis.

The standard questions for the interview are shown in Figure 5.1. Questions 1– 6 were designed to reflect the ideas participants would have encountered when they completed the OSI-R questionnaire, the structure of which is derived from PE-Fit theory (French et al., 1974), daily hassles (Gruen, Folkman, & Lazarus, 1988; Kanner et al., 1981), and burnout (Maslach, 2006; Maslach, Jackson, & Leiter, 1996). They explore the areas of job demand and personal strain, giving participants the opportunity to link the two if they chose to do so. Questions 7–9 and 13–14 were designed to elicit participants’ own explanations for either completing or failing to complete the project, and also what they believe may have been necessary for them to have behaved differently (e.g., if they completed, what could have caused them not to, and if they did not complete, what might have enabled/encouraged them to complete). Questions 10–12 and 15–19 were designed to reveal participants’ experiences of using the stress management techniques. Question 20 was intended to enable comparison to be made between participants’ experiences of stress and pressure from questions 1– 6, and their experiences of using the techniques from questions 10–12 or 15–19 with their likelihood

**Figure 5.1 Standard questions used in the structured interviews**

- 
1. Do you often have to adapt to changing demands and conditions in your job?
  2. To what extent does your work require you to interact with others, your peers, and subordinates?
  3. Is there significant pressure in your job?
  4. What about setbacks, do you have to deal with them often?
  5. To what extent do you feel emotionally drained or tired from your job?
  6. In general do you feel stressed in your job?
  7. Did you complete the project and all the training workshops?
- For those who did not complete the project only:
8. What were the reasons for withdrawing from the project?
  9. What might have encouraged or helped you to complete the series?
  10. Do you use any of the techniques that you learned?
  11. Did you get as far as learning any of the brief techniques?
  12. If techniques are used then: What benefit do you get from using the techniques?

For those who did complete the project only:

13. What led you to complete this project?
14. What might have caused you to withdraw early?
15. Do you use any of the techniques from the workshops?
16. Which ones do you use?
17. What about the on the spot methods compared to the more traditional ones?
18. Has the pattern or frequency of your use of the techniques changed since the workshops finished?
19. You have been using the techniques for a while now. Has that made any difference to the way you do things as a manager?

For all respondents

20. If stress management training workshops were to be offered again at your workplace would you enrol or take part? Why or Why not?
  21. When you say I'm stressed, what does that mean?
- 

of taking part in further stress management initiatives. Question 21 sought to explore participants' own conceptualisations of stress. The interview structure was tested for usability and comprehensibility with several experts in management from both theoretical (academic) and applied (practitioner) perspectives. Minor adjustments were made to the wording of some questions as a result of this pilot testing. The full form used for carrying out the interviews is shown in Appendix 7.

The standard questions in the structured interview contain a relatively large number of potentially closed questions to which a simple yes or no reply could possibly be given. During the interview closed questions were always followed by further probing or enquiry. Eliciting the initial yes or no did allow some degree of quantification of responses to these questions without requiring the interviewer to interpret whether a more open answer might be best interpreted as a yes or as a no. It is worth noting, however, that in no case did an interviewee respond with an unadorned yes or no to any question.

#### 5.1.4 Analysis

All interviews were transcribed by the researcher and entered as source documents into NVivo 7 a software system that aids qualitative analysis of relatively unstructured material. Transcripts were read several times to begin the process of extracting themes. An open coding approach was used to develop a coding framework (Bryman & Bell, 2003; Miles & Huberman, 1994). Two parallel approaches were used to code the participants' responses. Initial coding consisted of simply gathering together all the participants' responses to each question using the auto coding feature of NVivo 7. This process enabled the interviews to be read two ways, both as narratives by each respondent and as sets of comparative responses question by question. From this joint-structure reading approach more narrow areas of commonality emerged, were noted, defined as themes, and used to code responses. Where such themes emerged later in the analytical process, previously coded material was reviewed to enable the new themes to be included where appropriate. During this process some areas of text were coded to more than one theme as sufficient of the responses were coded to retain intact the sense and context within which the coded text occurred. During the coding process a colleague experienced in qualitative research methods reviewed the transcripts and codes at several stages to ensure the reliability of coding.

#### 5.2 Findings and Discussion

The structure of this section of the thesis reflects that of the interview format employed. It should be noted, however, that the participants' statements used to illustrate particular ideas often emerged as part of the discussion related to questions that were not, *a priori*, associated with that idea. (e.g., statements referring to high

pressure in the job may have been made while responding to a question relating to the use of learned techniques).

In the following section some conventions are observed to fairly represent the complexity inherent in the responses, aid clarity, and preserve the anonymity of participants. All directly quoted material is within quotation marks and is italicised. Where portions of text have occasionally been excised to reduce the length of quotes or remove material not necessary to maintain the meaning and intent, ellipses (...) are used. Quotes are identified as originating from either New Zealand or Australian managers and, where proper names were given by the participant they have been replaced by [Name] in the text for personal names or [Organisation Name] for the name of participant, or any, organisations.

### 5.2.1 *Organisational Context*

The two organisations from which the interviewees were drawn were the New Zealand and Australian operations of the same multinational telecommunications corporation. They share a significant core set of values and, more formally, policies and standard operating procedures despite their geographical separation (S. Gotty, personal communication, May, 2005 ).

Telecommunications is usually characterised as a high-tech, fast-paced and dynamic industry which seems to be reflected in the reported characteristics of the two subject organisations. This is demonstrated in the following quotes.

*“It’s a dynamic industry and probably a very dynamic organisation.”*

[Australian manager]



*“... it’s mainly what I was saying about fast paced, dynamic, forever changing, restructures, moving different departments, different projects...” [New Zealand manager]*

*“...[Name] has often said- the previous CEO - this is the most dynamic environment he has ever worked in...” [Australian manager]*

Against this background of industry-related dynamism these particular two organisations appear to share a cultural milieu of high pressure and rapid change. All interviewees mentioned the rapidity with which projects and priorities within the business could change, and all also related this rapid change to ideas of pressure and lack of control over outcomes. These are both factors considered to be associated with occupational stress (Spector, 1998; van der Klink et al., 2001). Pressure and lack of control are reflected in some of the following examples relating to the fast pace of the environment.

*“...because of the pace of change in this industry: you know, if you don’t keep up with the new technology you’re dead. Things do change before we’ve even had time to launch something and it’s already redundant.” [New Zealand manager]*

*“I think with [Organisation Name] it’s such a fast paced environment...we change all the time, in fact I’ve never worked in such a fast changing environment before. You start working on a project and then it changes focus or it stops. You know that can be a really hard environment to work in and I think, you know, that’s why we have such a lot of burnout here at [Organisation Name] because of the nature of the environment.” [Australian manager]*

*“A very simple example [of lack of control] our budget constraints. You plan a thing and then it can’t happen because of the budget constraints.” [Australian manager]*

*“...for instance I was working on a resourcing project for a year, nearly to the end, nearly to the business, and suddenly it got canned, and that sort of pressure and when you’ve been working on something and it just changes, and it changed because we didn’t have the budget, and for good reasons but when you put your heart and soul into something and then it suddenly changes. It’s that that you’ve got to deal with and*

*you've got to become very resilient and just roll with the punches."* (laughs) [New Zealand manager]

Respondents frequently commented on the effect that the felt pace and pressure in their working environment had on their lives, both in their work and private capacities. For example:

*"I used to come in to work and work most weekends when I first worked here at [Organisation Name] like [Name] is doing now. Like he is fairly new he's working some crazy hours and so are a lot of people around here, crazy hours, and I used to come in every weekend and I just refuse to do that now and, yeah so I guess I have adapted (laughing)." [Australian manager]*

*"I do have periods after very exhaustive and quite difficult meetings sometimes go over eight hours I feel really drained and all I can do is go home and sleep."* [New Zealand manager]

*"I often get quite anxious, quite nervous on a Sunday night about work on a Monday 'cause in my mind I'm always thinking ahead and thinking OK I've got to do this this week ... I get a bit anxious and I find it really hard to sleep on a Sunday night."* [Australian manager]

Despite the repeated perceptions of pressure and stress one can't help but be struck by the generally high energy and enthusiasm of the organisational members as the following quotes show.

*"There's always something interesting going on. So it goes, up and down; but I am at the moment on the upward curve because of the change and I've got a new area so, up and down and challenge. And the old one is becoming boring, but as long as there is something to balance and you're challenged, well the old boring stuff can stay..." [Australian manager]*

*"I took this role and it's a challenge for me. It's a totally different skill set so, even though I've found it to be very difficult, and handover could have been done a lot better, it has been very challenging and I am enjoying it."* [Australian manager]

*“I mean today I’m having a great day and I’ve got an awful lot on, but, it’s like ‘great’ ‘cause I’ll just get on and do it.”* [New Zealand manager]

*“I like my job very much. Yes I do”* [New Zealand manager]

Every meeting room and most work spaces in both organisations have notices, with the corporate logo and colour, exhorting standards of energetic and enthusiastic work and customer service. Unfortunately given the wording of the notices and the nature of the businesses it is impossible to directly quote them without instantly identifying the organisations concerned. The organisational context within which these managers live and work seems to be one of frequent change due to the dynamic nature of the industry, with the pressure that almost inevitably goes with such rapid change. This is felt by most organisational members interviewed as both pressure to perform and some lack of control due to relatively frequent project changes and, at times, budget restrictions. Long work hours are frequently reported by managers as illustrated below.

*“Oh yeah, by the time it’s time to go home it’s dark. I mean I’m here ‘till six o’clock, maybe a little bit later; it’s dark.”* [Australian manager]

*“... the problem with this one is I’ve worked 60 hours for six or eight weeks so I’ve got a load of extra time there that I’m probably not going to get back and I can’t necessarily afford now to take a week off because I’ve got the next bit hard on its heels and still got issues from the first one ... Every year we get busier and that will just continue.”* [New Zealand manager]

Not all managers, however, agree with the idea that such long hours are required by the organisation as is illustrated by the example below.

*“[Organisation Name] creates an environment that is not what I’d call a presenteeism culture, but it’s down to the individual to take that on board. Some people have worked in other organisations where presenteeism is the culture and they bring it with them. So although the company supports a different culture it’s down to the*

*individual to take advantage of that. I know for a fact that some people don't take advantage of that but I do."* [New Zealand manager]

It is possible, therefore, that some of the pressure felt may be self-generated although only one respondent expressed the above opinion and no other members of the respondent's team were interviewed. It is quite possible that differences between the cultures of individual teams within the organisation have a role to play here. Unfortunately the nature of this sample of participants (there are no multiple members from any team) does not allow this possibility to be examined.

In summary the respondents' perceptions of the organisational context within which they work appears to be characterised by high demand, pressure, relatively rapid change, and some lack of control often related to budget restrictions. Most feel that long work hours are required though two respondents expressed different opinions. One suggested that the perception of a requirement for long hours may be something that people bring with them from previous employers, and one makes clear that they no longer work the long hours they did when they first joined the organisation having realised that *"you don't actually get any thanks for that and you need to be smarter in how you work."* [Australian manager]

Yet within this environment there is still considerable enthusiasm and energy for the job.

### *5.2.2 Use of the Stress Management Techniques*

All participants in Study Two had been taught the stress management techniques. Not all of them completed the data gathering requirements for the research project, but all reported continued use of the techniques.

### 5.2.2.1 Barriers to the use of stress management techniques

There were perceived barriers that, in the minds of the participants, reduced the frequency and regularity of technique use below the levels they said they would prefer to use them. These are illustrated in the several following quotes.

*“I haven’t been applying them as much as I would’ve liked but I’ve found the techniques valuable. I think it’s just consciously training myself to apply them more regularly.”* [Australian manager]

*“ you almost need that daily reminder because this is an environment where it’s go, go, go, go all the time.”* [Australian manager]

*“I don’t find them difficult, I suppose, the only difficulty is forcing yourself to have the time to say yes I’m going to stop and do this. That again comes down to time management.”* [Australian manager]

*“I would say I used it probably quite a lot over a month probably about a couple of weeks after your workshop I used it consistently for a month, and then I haven’t so much lately, but you know I’ve got it onto my i-River [a portable MP3 music player]; it was easier for me.”* [Australian manager]

*“There’s probably only one that I do and I do remind myself to do it and it’s one that I also learned on that leadership in action course and is just taking yourself to that other place. That’s the one, but it is a bit of a constant fight to make sure I do that. I’m not the best of doing it. But it is useful when I do that.”* [New Zealand manager]

The main barrier expressed here seems to be related to the need to either be reminded, or remind oneself, to use the techniques against the background of constant occupation, though what seems to be accepted as natural attrition in technique use (Winzelberg & Luskin, 1999) is also evidenced. One manager was referring to the use of the recorded techniques in particular (the i-river MP3 player is referred to) while the majority were talking about the use of brief techniques. Winzelberg and Luskin found that although there was a high rate of attrition in the use of stress management techniques in secondary school teachers, brief techniques such as those used in this

study, had a much higher rate of continued use. It is interesting to note that, despite the barriers mentioned here, all managers interviewed did claim to be still using the brief techniques to some extent.

#### *5.2.2.2 Practice and triggers for the use of stress management techniques*

Despite the perceived barrier assumed above, most participants expressed the opinion that using the techniques became easier with practice, one put this particularly clearly.

*“the more you do it the easier it is. It’s like anything. It’s like riding a bike I suppose, but em, it’s also trying to remember to remind yourself to do it”* [Australian manager]

Here too there is acknowledgment of the need to remember to practice the techniques. For most participants there was little mention of practice of the techniques for practice’s sake, (i.e., techniques were referred to as being used when and where they were felt to be helpful rather than for the sake of perfecting their use or to gain any general benefit from them). This may be a reflection of the way questions were phrased rather than a clear indicator of reality as perusal of the diaries from those individuals who both kept and surrendered them shows the use of the recorded techniques from 1 to 2 times a week to several times a day during the 4 weeks training, and mostly at 1 or 2 times a week thereafter. As this is itself a biased sample, however (i.e., only those motivated enough to keep the diaries were represented), it seems possible the overall level of practice may have been lower. The most commonly mentioned reason for using techniques outside the work environment was the use of the recorded practice session or the rapid techniques to assist with sleep as is shown below.

*“I get a bit anxious and I find it really hard to go to sleep on a Sunday night so I often use your tape Sunday night and em, I like the one that gets you to focus on the different areas of your body to acknowledge it and then relax it that’s the one that I’ve been doing all the time, and that, afterwards I’m really focused, really relaxed and I fall asleep really easily so when I do it it works really well ... It allows me to sort of em, clear; get myself relaxed and do what I need to do to fall asleep. Or I often just do it before I fall asleep.” [Australian manager]*

*“I have the physical relaxation exercise where your limbs are very heavy and basically I’ve used that to assist me falling asleep” [Australian manager]*

*“Just some of the things I learnt from you like with the deep breathing and stuff I use that when I can’t sleep” [New Zealand manager]*

In general though, participants use the techniques in response to triggers in their daily working life. Examples of this use follow.

*“For me it’s a coping with that feeling of impending workload or meeting expectations and often they’ve been my own expectations so, yeah, it’s very much a conscious, you’re getting into that state again sort of thing. So there have been times when it’s worked quite well” [Australian manager]*

*“But there’s the rub is actually having a trigger because stress increases really gradually and you don’t recognise that you are feeling stressed but as soon as I become cognitive of the fact that or I’m now starting to get to an unhappy place, to be able to step back and I have done that and it is good.” [New Zealand manager]*

*“I think it’s just being in that area of the mind where you think, this is what I can do to actually help because you are so busy that you sort of forget. You know, you forget to go I could use relaxing technique to actually calm myself and probably get a bit more clarity about things. You know it’s really just a matter of having the time and thinking to do so.” [Australian manager]*

The last two quotes, yet again, reflect also the need to remember to use the techniques. This need to remember to use a stress management technique may have relevance to the development of stress management training, in that training in the identification of potential stress triggers could improve the effectiveness of stress

management by alerting individuals to the opportunity for techniques use. No technique can be effective unless it is used. A feature in common in the above quotes is a recognition of the, perhaps, insidious nature of occupational stress. Participants did not refer to acute incidents but to the gradual build up of distress until the point where they recognise that they are in a distressed state and that they can do something to alleviate that state, to at least some extent. What is not addressed here is the difference between demand or pressure and its appraisal by the individual (i.e., is it uplift or hassle) (Kanner et al., 1981)? It may be that learning to recognise when or where that change occurs could improve the effectiveness of stress management. This question must be left for future study.

#### *5.2.2.3 The use of brief stress management techniques*

It is interesting to note that, in their references to using techniques in the workplace, participants seem to imply that they are using the brief or rapid on the spot techniques taught in the later sessions rather than the longer relaxation and visualisation techniques. This is in accord with the findings of Winzelberg and Luskin (1999) that, where both kinds of stress management technique were taught, it was the brief ones that tended to be more persistently used. This was most clearly expressed by one manager.

*“I tend to use more the sort of thinking about relaxing just you know stopping and having a couple of deep breaths. But I probably use the end techniques that you were talking about”* (the on the spot techniques). [New Zealand manager]

Another manager talked about the difficulty of fitting in the use of the recorded practice sessions into a busy life while expressing clearly the opinion that doing so was beneficial.



*“the benefits of it are just so amazing doing things like the tapes to relax and to focus your mind but it’s trying to fit that into your, actually put that into your; say to yourself I need to set aside ‘me’ time and you need to do it you know on a consistent basis, I think that’s the hardest thing is to change your pattern and your routine.”*  
[Australian manager]

#### 5.2.2.4 *The benefits of the use of stress management techniques at work, and outside work*

Often the advantages of technique use centred on the personal benefit to the participant in terms of their own perceived levels of stress or anxiety in the work situation. This is illustrated by the following quotes.

*“I think that’s come down. It’s certainly come down a lot more than it used to be. I would still say I’m still stressed that is compared to a scale of one to ten where I was probably an eight or a nine I’m probably a five or six now. It has come down.”*  
and *“I think I feel a little bit more centred with it in the sense that I might, you know I’m not overly anxious, or stressed to the point where I, you know, just can’t sleep or anything like that, so I can actually disengage, ... so making sure that you take the top off the high points just by catching yourself early enough I think that that has had an impact.”* [New Zealand manager]

*“As I said the situation often it is kind of sitting at my desk and I look and there’s 50 to 100 e-mails that have come in during the day and if that invokes a period of panic or whatever then I can sit down and relax and that’s the most common situation.”* [New Zealand manager]

*“I guess it comes down to what we talked about and that’s just relaxing, just trying to calm your mind and then you get a bit of a different perspective and you come back to the idea of well you can only do so much so just do what you can and try not to get too confused about it all.”* [Australian manager]

*“Yes I do use the relaxation at times when I’m feeling a bit overwhelmed, you know the quick one where you just take a breath and relax.”* [New Zealand manager]

So it appears that the reduction of perceived stress, anxiety, panic, and of feelings of being overwhelmed, are all part of the reported experience of participants

using the stress management techniques employed in this project. Some participants also refer to the use of techniques outside the work environment. It appears that stress management, as well as stress may spill-over (Leiter & Durup, 1996) between work and nonwork settings.

*“And it might be interesting from an anecdotal perspective my son battles to sleep at times, to fall asleep, so I have taught him that technique. He really battles to do it himself but I’ve done it with him just talking in even tones and taking him through it and stuff: somewhat more structured than yours defining the happy place for him because he is nine years old and it’s been great to help him relax helped him not to lie there and going gosh I wish I could sleep I can’t sleep etc and just help in kind of just come down. It’s been fantastic. That’s helped me. I mean I’ve effectively done it while I’ve been going through it with him, so that’s helped. So yes I do use that technique and I do it whenever I recognise that I am ‘stressed’.” [New Zealand manager]*

*“As I said one of my issues is letting things go at the end of the day, and actually stopping and doing my switch to family and then going to family. So that’s helped me when I drive home so I do that and I use some of the techniques that we’ve got just kind of dissociate and reconnect with my other part.” [New Zealand manager]*

### 5.2.3 *The effects of the use of stress management techniques on perceptions of managerial behaviour*

From the perspective of this study, which is concerned with potential effects of the practice of stress management techniques on management performance, a number of responses relating to participants’ perceptions of performance were made. Some examples follow.

*“I haven’t had any feedback from anybody else but I suspect that people may have found me more relaxed in the last couple of months” and “I imagine then that in the next three or four months people will be seeing me more kind of relaxed in my approach” [New Zealand manager]*

*“Yes if I’m getting stressed I tend to become more flighty and less focused and try to do a hundred things at once and none of them effectively. And being able to just step back and relax and calm down, prioritise focus, leave stuff completely undone, you know maybe flick an e-mail off and say you know I’m not going to get to this get used to*

*it (laughing) and focus on the important things. And that's the most important thing. So it is just really getting under control” and “I tend to be slightly more objective I guess in the way I handle those kinds of things.” [New Zealand manager]*

*“I suspect people are thinking [Name] hasn't been very communicative and now they might be saying ‘oh she seems a lot more happy, a little bit more communicative, a bit more engaged than she might have been last year’.” [New Zealand manager, referring to self]*

*“I think that I have more control because if I manage to control myself or manage myself that means that I have a clear mind to judge everyone else in situation so that it means that I have better chances to win.” [Australian manager]*

*“Probably the one small change would be that generally if I get to a point where you get quite stressed or pressured with some feedback that I've had: not aggressive that's too hard a word, it's just I get very forceful, or very focused on words I've heard. That's certainly how I've seen my behaviour, like that, in the past. That is probably the one thing that softened. ... I think it's probably just more that probably just some of the techniques etc have helped soften, or just act as a little bit of a fugue breaker, before you go down that path and get very focused on someone. Back out of that. I've only done that maybe once or twice in the last six months. I was probably doing that once or twice every week. So that's probably one change, which is a good thing.” [New Zealand manager]*

These statements seem to indicate a growing awareness on the part of the participants, not only of changes in their personal stress but also of how that may be affecting their behaviour as managers. The participants quoted above perceive themselves to have become more relaxed, more focussed and to be better able to “step back” from situations and prioritise their tasks. In addition, they perceive that others may be finding them more communicative and less over-forceful in some of their interactions. One in particular refers to feeling more in control and clear minded. Many of these perceived qualities appear to relate to response items that are part of the Personal Qualities Competency (Saville Holdsworth Ltd., 1993) that was employed as a performance measure in Study One of this thesis (e.g., “stays calm under pressure”,

“keeps control in stressful situations”, “is able to work under pressure” and “is self controlled”).

#### 5.2.3.1 Increased awareness of stress

Participants also reflected that they have become more aware of their own stress and that this awareness helps them manage it.

*“Probably because talking about things and going through the stress workshop that simply defined certain things so probably previously they just ran in the background now they're in the forefront so I recognise them.”* [Australian manager]

*“I know I don't have to get so irate and so wound-up then; I just know”* [Australian manager]

*“I think I'm a bit more conscious of some of the stress is going on than I was in the past. And probably sometimes consciously, and sometimes unconsciously, practicing some of the techniques as time goes on particularly some of the stuff around breathing and just stopping and thinking about some stuff.”* [New Zealand manager]

There is also some increased awareness of the participants' own impact on the stress of their team members. This awareness was quite clearly addressed by two managers.

*“Certainly I think I've been somewhat more in tune with the impact on them: it's an awareness around the stress that they might be under more than anything. Stress and pressures generated in the meetings and the demands that I'm placing on them.”* [New Zealand manager]

*“Yes. As I said before it's made me aware of the possible stressful impacts that I'm having on my people. And that's probably the most significant thing.”* [Australian manager]

In summary, the participants interviewed perceived that use of the stress management techniques has had a positive impact on their awareness of sources of stress, and in their ability to manage the strain that these engender. They also believed that their ability to manage their reactions to stress has had a positive influence on some aspects of their behaviour relevant to their function as people managers, particularly in the interpersonal communication and relationship management areas. These responses are in agreement with the findings of the quantitative study which showed improvement in both personal stress as measured by the PSQ scale of the OSI-R (Osipow, 1998), and in the Personal Qualities Competency Cluster of the IMC (Saville Holdsworth Ltd., 1993).

#### *5.2.4 Participants' definitions and experiences of stress*

During the interviews all participants were asked what they meant when they said "I'm stressed". In the discussion following this question, several related themes emerged that may be described under the headings of "workplace overload", "general overload", and "internally focussed conceptions of stress". These were related to different aspects of the way stress was defined and experienced by the participants.

The following quotes may best illustrate the workplace overload theme.

*"... overloaded, too much to do, not in control of things."* [New Zealand manager]

*"Too much happening at once, and I used to have a phrase with a friend of mine, where an "it's all too much moment", where there's just too many things happening at once and it really seems like it's just all too much."* [New Zealand manager]

*"The expression 'pushing shit uphill' comes to mind."* [Australian manager]

*“I think work overload”* [Australian manager]

These responses all reflect a primary concern with feelings of having too much to do, or perhaps too many different things to do in the work place and are reminiscent of the idea of role overload as exemplified by the work of Kahn (Kahn, 1974; Kahn et al., 1964) and incorporated into the RO scale of the OSI-R (Osipow, 1998).

In terms of the general overload theme, one manager specifically referred to a tendency to voluntarily assume too many responsibilities in and outside work and another referred directly to other pressures outside the work environment.

*“but usually for me it's about taking on too much and then it all kind of hits all at once so it is my own fault usually”* [New Zealand manager]

*“not having a good work-life balance, so trying to manage you know a property outside work, on the committee of, the strata committee trying to make all these changes there and do everything at work so I'm not really relaxing at home er, putting too much pressure on myself. Yeah I guess it's a number of things yeah.”* [Australian manager]

This general overload theme may be illustrative of spill-over where stressors outside the workplace affect occupational stress, and workplace stressors affect general stress levels outside the workplace, a process which may lead to an overall increased level of stress both in and out of the work situation (Leiter & Durup, 1996).

Most participants reflected on a more internally focussed conception of potential stressors and form the third theme.

*“I personally after trying to define stress would think it stress is someone not being able to meet one's own expectations.”* [Australian manager]

*“I think it means a number of things. I feel probably a great weight of responsibility. When I'm particularly stressed I can feel that it's almost insurmountable whatever the particular issue is”* [New Zealand manager]

*“I’d associate with that an uncertainty around certain decisions that have to be made, definitely when it affects myself, but probably more so when it is something that is going to affect other people. That would probably be more stressful, more anxiety creating. That would probably be it.” [Australian manager]*

As far as these managers were concerned the prime workplace stressors were centred around work pressure and multiple concurrent demands and, for some as expressed above, uncertainty around decision making. This latter concern recalls ideas related to role conflict where managers become uncertain about how to act or make decisions in response to a lack of clarity in their work roles, a situation which, it has been suggested, leads to increased stress (Rizzo, House, & Lirtzmann, 1970). Most respondents also did not closely distinguish between stress and stressor in their responses to the initial question. This lack of distinction is perhaps best illustrated by the single reply below, which contains references to external pressure and demand, emotional response, and physiological response in a single answer to the initial stimulus question.

*“It’s usually just things flying around too much I found too sometimes it’s can’t concentrate. I found that a bit last week, when I had lots of projects to manage and I had lots of people coming to me to ask questions and stuff. I’d start something and then forget what I was doing, be easily diverted into something else. I have on occasions felt physical, like a couple of occasions when you know, you can’t take a deep breath it’s hard to breathe and I guess the other one is you sort of feel more emotion. I had one like that last week, the really horrible day lots and lots of emotions running really hot amongst the whole team so I found that I got more angry. And when I left a particular meeting, I felt quite emotional. I sort of could feel the tears coming and I don’t do that. Those are the things, but usually it is too many things going on in my head” [New Zealand manager]*

When it came to describing their experience of stress participants’ responses covered various aspects including emotional and physiological responses, perceived cognitive impairment such as confusion or inability to concentrate, and some

behavioural patterns, often in combinations. Some examples are summarised in Table 5.1.

The literature concerning nonacademic and nonprofessional interpretations of stress is relatively sparse (Kinman & Jones, 2005) but it is interesting to note some parallels between the findings of the current study with earlier work, especially the most closely related study of Kinman and Jones. In a similar manner to the current study, Kinman and Jones were interested to find what people meant when they said they were stressed. Whereas in the current study that question was posed quite directly “When you say ‘I’m stressed’ what does that mean?”, Kinman and Jones were a little more indirect. They asked six questions in a semi-structured interview approach with question one “What do you think the term ‘occupational stress’ means?” (Kinman & Jones, 2005, p. 107) being their slightly less direct question. The authors specifically stated that they wished to elicit their interviewees’ opinion on the concept of stress in general rather than their personal, first hand, experiences thereof. Despite the differences in approach and the potential influence of recent stress management training and psychometric survey on the current sample there are strong parallels in the findings.

A third of Kinman and Jones’ (2005) interviewees conceptualised occupational stress as negative stimuli such as work overload whereas all interviewees in the current study regarded overload as a prime stress while also acknowledging other more internal aspects such as “*a great weight of responsibility*” and uncertainty as contributors to a stress response.



**Table 5-1: Participants' descriptions of their experiences of stress with indications of emotional (E), physiological (P), cognitive (C), and behavioural (B) reference**

Quote	E	P	C	B
"It could mean that I'm stressed because I just don't know what to do next. I've got all these things in my head that I know I need to do and I just can't clearly pick one out and do it. Or I'll start doing it ... I did it yesterday. I started doing something, did something else, did something else, having about five different conversations with people all at the same time em, and like handling three or four tasks. And yeah, multitasking's great but there comes a point where I'm saying "Am I really actually getting anything out of this?" I'm just expending my energy on it and I'm not getting anything back." and "Yeah the whole not being able to pinpoint one thing, not being able to focus. And maybe being a bit agitated and finger tapping and you know that would be a physical attribute of it and sometimes ... I don't like huffers, but sometimes I'll have a huff." and "Just annoyed, just like I know it doesn't have to be like this. If it's someone else that's put this upon me well that's what I hate, but it's just general annoyedness pissed-off-ness." [Australian manager]	X		X	X
"Em, I think, a number of things ... you often em ... for me it's more of a physical thing. I can feel it in my body very quickly. I get flushed, (giggled and flushed) tense in my shoulders em, my heart starts to race, em yeah it's a very physical reaction to me. I just get very anxious em, my mind becomes a bit cloudy, I start working really quickly, and em, yeah it's just a feeling of 'Oh shit!' (laughs) yeah. You just, you just don't know where to start and you just feel overwhelmed and what that must do to your body is just; yeah!." [Australian manager]	X	X	X	X
"What would that translate to? Probably a typical sensation I would be agitated I would feel a bit fuzzy in the head, I would probably feel like my blood pressure was growing up I would feel a bit of pumped up like that. Maybe some other things like a tightness in the neck or the back something like that. And from a mental point of view I'd say confusion to a certain extent, just being unsure of everything... is clear in your head, and possibly it leads to a kind of procrastination where there's so much to do what you do first?" [New Zealand manager]	X	X	X	X
"I think in the first instance it's probably a little bit of anger that you're so busy, but I think after that it would probably turn the other way and become oppressive because you would feel that you, well I would feel that I'm not performing to the best of my ability so I'd be angry but also distressed and perhaps a little bit depressed about it." [Australian manager]	X			X
"Okay! The symptoms are that inability to focus on one thing plus the feeling of being out of control kind of a drowning feeling sometimes and increased pulse even so physical manifestations sometimes even kind of a cold sweat but not quite to the n'th degree just very slight." [New Zealand manager]	X	X	X	
"There are certain things I do, that I only do in a stressful situation and if I see myself doing them I know that I'm stressed: obsessive things, repeating things. If I ever see myself doing that then I know. Things like shut the car three times and make sure it is locked, not be happy with something I've written down from notes and just rewrite it there's really no need to do that, I'll find that I'm preoccupied with how much I've got ahead of me." [New Zealand manager]	X			X
"Where stress for me comes into is when I feel there is little moments where you're just holding on just by the tips of the fingers and then suddenly you don't feel anything (gesturing with fingertips, hands clawed) and you think 'shit am I falling, am I finding something else.' And that's exactly how it feels to me and those situations are quite simply I don't know what's next, I don't know my diary, I don't know where things are at, I don't know what stage people are working on things. It's usually very much a light touch approach when you feel that you haven't got that, that you think wow! Stop. I've got to go all the way back and re-establish all that again so I can get my anchor point again, and then I can still just hold on with fingers I don't need to hold on tight I just need to hold on with fingers that's fine. That's when I feel stressed is when I just don't have that certainty of just knowing what's generally going on." [New Zealand manager]	X		X	
"When I was younger and really worked way too hard I remember driving home and vomiting in my own lap because I was so stressed and tired and exhausted and I was about 30 then, that when I was about the worst." [New Zealand manager]		X		

Those interviewees of Kinman and Jones who conceptualised occupational stress as primarily a response to external stimuli (20% of their sample) showed a range of ways of describing the response, which Kinman and Jones categorised as physical responses (e.g., departure from physical health), cognitive responses (e.g., inability to think clearly), affective responses (e.g., departure from optimum psychological functioning), and as a combination of all of these. As shown in Table 5.1 and elsewhere in the current study, a similar complex multi-faceted concept seems to underpin the responses given by this group of corporate managers. Similarly to Kinman and Jones' findings, participants in the current study often gave responses that contained aspects of some or all of emotional, physiological, cognitive, or behavioural interpretations of stress.

Other researchers (Dewe & O'Driscoll, 2002; Rydstedt, Devereux, & Furnhams, 2004) have also investigated nonacademic interpretations and concepts of occupational stress. Rydstedt et al. (2004) investigated the relationship between lay theories of stress and resulting distress in a longitudinal study and found a small but significant effect in that beliefs regarding the causes and alleviators of stress were related to longer-term perceptions of mental stress. Dewe and O'Driscoll were more directly concerned with managers' conceptions of stress and how they related to the actions managers may take to reduce stress in their organisations. The findings from this study suggested that individuals who perceived they had little control over stress factors in their workplace were more likely to consider stress and its management as a managerial responsibility than as an individual responsibility. These studies took a, perhaps, more narrow stance due to the prime use of psychometric instruments, with their predefined constructs, to elicit responses regarding stress rather than the more open approach of Kinman and Jones (2005), though Dewe and O'Driscoll did also employ some more open questions

in their survey. Kinman and Jones employed semi-structured interviews to elicit lay representations of work stress. In summary, there appears to be some agreement between the Kinman and Jones study and the current study in that the participants' concepts of stress appear to be complex and multifaceted incorporating stimulus and response, and emotional, physiological, cognitive, and behavioural aspects.

#### 5.2.5 *Participants' reasons for completion or noncompletion of the research program*

The responses of those interviewees who failed to complete the data gathering requirements for the research project after having completed all the technique training sessions were quite consistent in suggesting that, once having learned the techniques, completion of the data gathering instruments seemed of low priority in comparison to the perceived demands of the workplace. Selected quotes demonstrate this point.

*"Just suddenly something within the business came up and there was no way I could get out of it. The business has to come first absolutely. Customers!"* [Australian manager]

*"I guess it's not a priority for me. That's my reason."* [New Zealand manager]

*"Too many other things to do! ... as things got busier our meetings started to go by board too and it just seemed too hard to fit it in. Otherwise there are just too many urgent things to do here."* [New Zealand manager]

*"Just excessive workload, or urgency of workload."* [Australian manager]

*"I think it was just the pressure of too many other things to get done. You know there's only so much time in the day and some of those questionnaires did take a lot of time, especially when you take into account finding others and taking their time up too."* [New Zealand manager]

A further reason given for withdrawal by one of those who failed to complete all the training sessions shows a perception that their senior managers were not committed to the project themselves.

*“I think that's one of the things at [Organisation Name]. Initially the top level people were there and you think well you're the most stressed and you should be doing this and then they're not there so then you kind of drop-off because they should lead by example.”* [New Zealand manager]

This particular manager was a member of a large team that showed initial high enthusiasm for this research project but then had the highest withdrawal rate of all the teams that remained in the study. This was one of the few teams where the senior managers failed to attend after the initial meeting. In commercial organisations such as those in which this study was set, where high work pressure and multiple concurrent demands are the norm, visible support from direct superiors may serve as a key signal that participation in what might be considered a nonproductive activity is OK. Although formal organisational support was given from the highest level through memos and initial staff meetings, it may be that continued active and visible support from those key people who represent authority to the participants provides the strongest impetus to continue.

When those who did complete all data gathering requirements were asked for their opinion of what it would have taken to cause them to fail to complete they reflected also on others' possible reasons and echoed quite accurately the responses given by those who did not complete. The second and third quotes below reinforce the idea that perceived organisational needs are likely to take precedence unless, perhaps, there is some visible demonstration by senior management that priority should be given elsewhere.

*“Oh well I’ve done the workshops and I’ve got some benefit out of that I don’t really need to do the recording.” [New Zealand manager]*

*“People will prioritise their work, because this sort of thing from an individual point of view is probably seen as a benefit to them and their stress management, but unfortunately, personal benefits often get deprioritised, and the work commitment is put on top. ... I’m doing 60 hour weeks, and the rest of my life is going “hey what about me”. For some reason, we tend to do that here, get very focused on delivering work commitments.” [New Zealand manager]*

*“I think it’s just because of the environment we’re in you tend to; the default is you tend not to concentrate on you or what you actually need to do to change it’s hard to change the pattern of work yeah.” [Australian manager]*

Those of the interviewees who did complete all data gathering requirements indicated that the prime reason for doing so was a sense of personal commitment engendered at the beginning of the project. The majority (five of seven) in this group had also either completed postgraduate research degrees themselves or had recently been engaged in tertiary study and *“... know what you’re trying to do and how hard it is.”* [New Zealand manager] and as one other commented, had he not completed *“I would have carried a lot more guilt quite honestly, which would have compounded the situation for me personally (laughing)”*. [New Zealand manager]

So it would seem that in this corporate setting participants’ perceptions that work pressures and task requirements had to take precedence over research participation, perhaps coupled with an apparent lack of senior management support in practice, may have contributed to the high rate of noncompletion in study one.

### 5.2.6 Intentions to take up future offers of stress management training

Most participants indicated that they would be likely to take up future opportunities for stress management training for their value as refreshers, perhaps related to the previously reported comments about the difficulty of remembering to use the techniques, or that they would encourage others to attend.

*“Yes definitely I would. Because I think it is good to revisit these things to just: it helps you to learn them all the more you do and I just think it's a very important thing.”* [New Zealand manager]

*“Yes. I think it's fairly; it's just a life skill probably the difference between good health and poor health in the long run”* [Australian manager]

*“Yes I would. A kind of a refresher! Every three months I think would be an ideal kind of a timeframe just to go through the techniques are going or: though having said that we got the CDs so I could do it just for myself couldn't I? (Laughing). But getting it in the diary is always the trick. So again just to stop that natural dwindling effect.”* [New Zealand manager]

Most of those who said they would encourage others to attend suggested that they now had sufficient resources to manage their own stress but might take up further training if they felt the need at the time.

*“Possibly not, depends a little bit on the circumstances. I think perhaps if I was again feeling that I was in a stressful period I might take them up but I feel I've got quite good techniques now and I've still got a lot of the material and stuff that you gave me and you handed out so I've got I think things that I can refer back to as well. Yes but I'd probably encourage other people to take up some of those workshops.”* [New Zealand manager]

*“I'd certainly encourage people I know to enrol and I think it's important if they were in my team that I was there too ... think it would be important to attend if I had team members going or if I was a point where I thought I needed to address it.”* [New Zealand manager]

### 5.2.7 Summary

In summary, these findings suggest that in the corporate milieu of high pressure, frequent change, and at times lack of control that these participants work in, and in which this research project was carried out there is energy and enthusiasm for the job but there are also, at times, feelings of stress, anxiety, and of being overwhelmed. Participants have found that using the stress management techniques seems to relieve the feelings referred to above but participants also found it hard at times to remember to use the techniques. They nevertheless perceived that using the stress management techniques did produce some on-the-job behavioural changes that were positively related to their work as managers. Participants also believed that they were more aware of stress in others than they were prior to learning the techniques. Perhaps as a result of the above findings, most participants would take up further stress management training were it to be offered. Despite these positive perceptions, however, it was also perceived that the demands of the workplace may overcome intentions to attend stress management training and may be even more likely to overcome intentions to complete research protocols where no direct personal benefit was perceived. These ideas may have been most directly expressed in an e-mail received from an Australian manager apologising for withdrawing from this research.

*“... so please accept my apologies for withdrawing but I realised I was finding it increasingly stressful to make time to attend the stress management workshops. (How ironic is that?)...”* [Australian Manager]

Table 5.2 briefly summarises the numbers and percentages of participants whose responses were coded to the main themes of this analysis.

**Table 5.2: Number and percent of participants' responses coded to main themes**

	Number coded	Percentage coded
<b>Organisational Context</b>		
High job demand	13	93
Frequent change	9	64
High pressure of work	14	100
<b>Stress Management</b>		
Barriers to use	5	36
Intent to practice	9	64
Use of brief techniques	8	57
Recognition of benefits of use	10	71
Perception of others' reactions	5	36
Increased awareness of stress	4	29

#### *5.2.8 Brief answers for research question for study two*

Earlier in this chapter the main research questions addressed in this study were briefly expressed as a series of bullet points. In analogous fashion, specific answers to those research questions posed at the beginning of this second study are provided below:

- The workplace context is, for this sample of managers, one of high pressure and demand with rapid change and a perceived lack of control
- Managers have continued to use the techniques they have learned despite perceptions that they find it hard to remember to use them. Managers also show a greater likelihood to use the rapid on-the-spot techniques in



the workplace.

- Participants do perceive benefits from their use of the techniques in terms of their perceptions of workload and pressure, and in terms of their own ability to relax.
- The prime reasons for withdrawal from this research program appear to relate to the workplace pressure and demand, the perception of no further personal benefit once the techniques were learned, and, in some cases, an apparent lack of commitment from senior managers
- Managers do appear to perceive that their own behaviour has changed in terms of appearing more relaxed and communicative and being more aware of stress in others
- This sample of managers came to no simple agreed definition of stress but, in agreement with the findings of Kinman and Jones (2005) their definitions are multifaceted and complex amalgams of physiological, psychological, and emotional aspects

## 6 Chapter Six: General Discussion

This chapter brings together the findings of Study One and Study Two in discussion and leads to recommendations for further research in this area, and to some suggestions for improving the effectiveness of SMIs. The title of this thesis is “Somatic and cognitive stress management interventions: Their effect on measures of stress and competency in managers”. Two studies have been carried out to provide findings in order to fulfil the implications of this title. It was for this purpose that the sampling frame of corporate managers was selected, that the particular somatic and cognitive techniques were selected, and that the OSI-R and IMC multi-rater competency instruments were selected for use in Study One. During the process of carrying out Study One it became apparent that (a) there was a greater than anticipated attrition rate among participants in the study, and (b) that this study would benefit from the addition of the kind of information that can only be gained by the use of qualitative methods of enquiry. To investigate the causes of the high attrition rate and to satisfy point (b) above Study Two was developed and carried out.

The findings from Study Two of this project appear to confirm those of Study One. The managers interviewed perceived that they were less stressed as a result of using the stress management techniques that they had learned. This is in accord with the statistical findings from Study One which showed significant reductions in personal stress in the group that learned the techniques relative to the wait list control group. Taken together, these findings provide strong evidence for the effectiveness of individual-focussed stress management interventions in reducing personal stress, in this case in high pressure, high demand, workplaces where perceptions of a lack of personal control are part of the organisational milieu. These findings are in agreement with those

of van der Klink et al. (2001) who showed in a meta-analysis that, in general, individual-focussed stress management interventions were effective in reducing personal stress. An unusual feature of Study One was the direct comparison of two different types of stress management technique, somatic and cognitive. While it may be impossible to regard any techniques as wholly cognitive or wholly somatic, the two used here, one based on physical relaxation and one based on visualisation and affirmation, can be clearly seen as primarily somatic and cognitive respectively. Contrary to the predictions of the multi-process theory (Davidson & Schwartz, 1976) no difference could be found in the effects of the different techniques on physiological or psychological stress as measured by the PHS and PSY subscales of the OSI-R (Osipow, 1998). This goes some way to addressing the concerns of van der Hek and Plomp (1997) that more knowledge was required regarding the relative effectiveness of the subcomponents of SMIs. Cognitive and somatic individual-based techniques are both effective in the reduction of stress in managers.

The demonstrated effectiveness of the somatic and cognitive techniques used in this study could, in part, be explained by their relationship to the theories of occupational stress reviewed in the early part of this thesis. The three main models discussed, PF-fit (Edwards, et al., 1998), Control Theory (Spector, 1998), and the PIM (Le Fevre, et al., 2003) all have in common a subjective element of appraisal by the individual of the nature of the stressor in relation to themselves. Both of the techniques employed have been regarded as achieving their effects through, at least in part, causing the individual to reframe either their interpretation of stressors as less damaging or less important (Fanning, 1988), or their experience of the stress reaction as less severe (Ost, 1987).

The interviews for Study Two were conducted after the last, long-term follow-up measures were taken for Study One. The findings from Study Two, (i.e., that participants were still using the techniques and feeling a benefit from them), therefore, lend further support to the persistence of an effect of this stress management intervention beyond the last week 24 assessment. The general lack of long-term follow-up in SMI studies has been previously commented on (De Frank & Cooper, 1987; van der Hek & Plomp, 1997). In a similar manner, the findings from Study Two that managers perceive that they feel, and are likely to be seen as, more relaxed and more communicative as a result of their use of the stress management techniques lends further support to the findings from Study One. In Study One, significant positive differences, from both statistical and practical points of view, were demonstrated for the intervention group relative to the wait list control group in the Personal Qualities Competency from the IMC. These differences were demonstrated in both the self and others' appraisals. In the case of the others' appraisals, however, the subordinates appraisal failed to reach statistical significance at the  $p = 0.050$  level. Considering the evidence that others' appraisals of management competencies have shown good correlation with commonly accepted measures of managerial performance (Atkins & Wood, 2002; Beehr et al., 2001; Johnson & Ferstl, 1999) and with objective measures of organisational performance (Sala & Dwight, 2002) the findings of Studies One and Two strongly suggest that the use of stress management techniques such as those employed in this study do provide a positive effect on managerial performance.

From Study Two it is apparent that there are multiple possible reasons for the high attrition rate among participants in this research project. Participants spoke of the conflict between the perceived task needs of the organisation and their commitment to attend training sessions or provide feedback for the research process. Others referred

specifically to the perceived extra effort involved in arranging for others to give feedback for the competency measure. This may have contributed to the much higher eventual attrition for this measure. Still others referred to an apparent lack of top management commitment demonstrated by their not completing the process themselves. A few participants openly stated that once they had learned the stress management techniques they saw no further personal benefit in continuing to provide data for the research process. There seem to be two issues here, one to do with the early withdrawal from the stress management training and another concerned with a failure to complete the research process after having learned the techniques. Unfortunately, though not perhaps surprisingly, it was not possible to interview anyone who had withdrawn before finishing the training process. None of these people were willing to volunteer for interviews. One can only assume therefore that the reasons for such early withdrawal may have been similar to those which caused later withdrawal in others. From Study One there appears to be no statistically significant difference in baseline stress between those who withdrew or did not complete data gathering though a possible trend to those who withdrew being slightly higher on stress measures is apparent. The most consistent finding from Study Two in regards to a failure to complete this project is that managers perceive that, in most cases, the organisational demands on their time and attention outweigh other considerations, and in some cases even considerations related to their own private lives.

It would seem, however, that cognitive and somatic stress management techniques do have a positive effect on measures of stress and competency in managers; the latter measure being confirmed by others' appraisals as well as the more common self appraisal, and reinforced by the qualitative investigation of Study Two. In addition, some insight has been gained into the possible reasons for withdrawal and failure to

complete stress management interventions such as this in commercial corporate settings for example; the perceived primacy of organisational and work demands, which may be reinforced by an apparent lack of top management support, and an instrumental approach that leads to withdrawal once personal gain has been achieved.

### *6.1 Practical implications of these studies and directions for further research*

Perhaps the major practical implication of these studies is that individual-focussed stress management interventions do have positive and, at least in the medium term, persistent effects on both personal stress and on managerial interpersonal competency. This is in accord with earlier theory-based suggestions by Le Fevre et al. (2006) that individual-focussed or secondary stress management interventions should be considered as first-line interventions to be followed by more comprehensive primary or organisation-based interventions rather than be considered as simple adjuncts to the primary interventions. This finding runs counter to the recommendations of several authors (Cooper et al., 2001; New Zealand Government, 2003; Noblet & Lamontagne, 2006) but is not an opposing view, rather it is just a slightly different one. Primary SMIs have considerable theoretical support and it would be surprising indeed if it were ever to be shown that they were not effective. The main difficulty in proving conclusively that primary SMIs are effective is one of method. The results of these current studies do not indicate that primary SMI should be supplanted by secondary interventions, but rather that (a) the converse should definitely not occur (i.e., secondary SMIs should not be neglected in favour of primary SMIs) and (b) that secondary SMIs may be most useful as precursors to organisation-based SMIs.

Other implications concern the design and implementation of potential secondary SMIs for use in pressured and demanding settings. The spaced learning

approach used in this study has achieved significant results by both stress and competency measures and according to the evidence from the qualitative study. Though some of the managers interviewed expressed a preference for whole or half day sessions rather than the several short sessions employed here, these preferences seemed to relate primarily to the perceived difficulty of interrupting their day, and moving away from their tasks than to a belief that such short courses were in any way more effective in terms of results. It is also worth noting that, as both types of technique (somatic and cognitive) appear to be equally effective in stress reduction it may be appropriate to teach both as part of stress management interventions. Participants would then be free to choose to practice and use the technique they felt most comfortable with. The spaced learning approach used may be relevant to the attrition problem that was experienced due to the stated preference of some managers for shorter, more concentrated, training formats. Others referred to a perceived lack of top management support and suggested that this lack of support was demonstrated by the fact that these particular managers did not attend the sessions. It should perhaps be pointed out that this nonattendance by senior managers was only a sporadic problem in the specific settings used. It is notable that the one large team that withdrew completely did so due to a lack of top management support. It seems likely therefore that top management support, in terms of their personal and consistent attendance at all sessions, may be a key to successful SMI implementation. Memos and exhortations may not be sufficient.

Future research into the most useful and effective combinations of primary and secondary SMIs should perhaps now be a priority though the difficulty of attaining such knowledge is high. The methodological problems inherent in trying to assess effects at the aggregate organisational level, where the difficulties of achieving any kind of effective control are very high, of interventions that may themselves be comprehensive

and wide ranging in nature, are also very high. A possible initial approach may be to continue, as this study has attempted to do, to compare specific components of wider ranging SMIs and continue to assess them separately in their effectiveness on both stress and performance. Although it may well be that, when used in combination, such components can exhibit a synergistic effect, their individual assessment should be the first step. Only then can synergy, or indeed antagonism, be assessed. A further potentially rewarding area for study may be the reasons for withdrawal, or even nonparticipation in SMIs. As has been experienced in Study One of this thesis withdrawal from the intervention may be high and this may contribute to a reduction in the effectiveness of SMIs overall. From the results of these two studies it seems that a spaced learning approach with the active participation of top management may be an effective approach to stress management intervention in the corporate setting.



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## 7 Appendix 1

**Table 7-1 IMC Response items and the scales to which they contribute**

<b>IMC Scale</b>	<b>Items</b>
Leadership	Gets the best out of individuals [others]
Leadership	Defines team goals
Leadership	Keeps the team focused [on tasks]
Leadership	Co-ordinates group activities
Leadership	Is effective in leading others
Leadership	Takes responsibility for own team
Leadership	Motivates others [to reach team goals]
Leadership	Builds effective teams
Leadership	Drives others towards goals
Leadership	Identifies development opportunities for staff [others]
Planning & Organising	Is effective in planning and organising
Planning & Organising	Pays attention to planning
Planning & Organising	Produces comprehensive project plans
Planning & Organising	Allocates realistic time scales for activities
Planning & Organising	Is realistic about time scales
Planning & Organising	Is systematic in approach to work
Planning & Organising	Makes time for planning
Planning & Organising	Plans for changing circumstances
Planning & Organising	Keeps track of [own] activities
Planning & Organising	Builds in checkpoints, milestones and controls
Quality Orientation	Sets high standards [of performance for self and others]
Quality Orientation	Can be trusted not to compromise on standards
Quality Orientation	Pays attention to quality issues
Quality Orientation	Demands high quality results
Quality Orientation	Encourages a sense of standards in others
Quality Orientation	Is aware of the importance of quality
Quality Orientation	Is committed to achieving high standards
Quality Orientation	Is concerned about the quality of own output
Quality Orientation	Is effective in maintaining standards
Quality Orientation	Produces high quality results
Persuasiveness	Persuades [and influences] others to own viewpoint [effectively]
Persuasiveness	Changes people's views [opinions]
Persuasiveness	Gets others to change direction
Persuasiveness	Negotiates skilfully [well]
Persuasiveness	Articulates the key points of an argument
Persuasiveness	Convinces with counter-arguments
Persuasiveness	Is effective in persuading others
Persuasiveness	Knows how to lobby effectively
Persuasiveness	Pays attention to the political process
Persuasiveness	Successfully promotes own ideas
Specialist Skills & Knowledge	Keeps up to date with advances in own specialism [new products and services]
Specialist Skills & Knowledge	Demonstrates specialist knowledge [expertise in own area]
Specialist Skills & Knowledge	Knows the technical requirements of the job

Specialist Skills & Knowledge	Quickly assimilates new technical information
Specialist Skills & Knowledge	Shows detailed job knowledge
Specialist Skills & Knowledge	Appreciates technical subtleties
Specialist Skills & Knowledge	Is effective in own technical area
Specialist Skills & Knowledge	Is up to date with new developments in own field
Specialist Skills & Knowledge	Quickly absorbs technical explanations
Specialist Skills & Knowledge	Shows concern to maintain own technical knowledge
Problem Solving & Analysis	Is effective in problem solving
Problem Solving & Analysis	Draws accurate inferences from information available
Problem Solving & Analysis	Recognises pertinent information
Problem Solving & Analysis	Takes account of key information
Problem Solving & Analysis	Uses logic accurately
Problem Solving & Analysis	Can identify the core of a problem
Problem Solving & Analysis	Analyses relevant information
Problem Solving & Analysis	Integrates data from different sources
Problem Solving & Analysis	Draws appropriate conclusions [from information provided]
Problem Solving & Analysis	Makes rational judgements
Oral Communication	Keeps the attention of an audience [of others] when speaking
Oral Communication	Is effective in oral communication
Oral Communication	Is fluent [and unhesitant] in speech
Oral Communication	Expresses self confidently in groups
Oral Communication	Is responsive to needs of an audience when speaking
Oral Communication	Keeps to the point when presenting to others
Oral Communication	Responds to feedback from an audience
Oral Communication	Speaks audibly
Oral Communication	Takes account of the audience when presenting
Oral Communication	Uses summaries and restatements during presentations
Written Communication	Writes clearly and succinctly
Written Communication	Writes in a fluent manner
Written Communication	Uses correct spelling and grammar in writing
Written Communication	Produces correspondence which addresses needs of its recipient [audience]
Written Communication	Produces memos which are easy to follow [free of unnecessary jargon]
Written Communication	Avoids over-complex language when writing to others
Written Communication	Is effective in written communication
Written Communication	Produces clear and logically structured memos
Written Communication	Writes in a structured way
Written Communication	Writes memos which are easy to follow
Commercial	Is profit conscious
Commercial	Is aware of competitor activity
Commercial	Identifies opportunities to reduce costs
Commercial	Has strong commercial instincts
Commercial	Assesses own work in commercial terms
Commercial	Is effective in dealing with commercial issues
Commercial	Knows who the competitors are
Commercial	Perceives opportunities for new business
Commercial	Takes account of revenue and cashflow
Commercial	Understands the business significance of their own work
Innovation and Creativity	Is innovative
Innovation and Creativity	Introduces fresh insights
Innovation and Creativity	Generates imaginative alternatives
Innovation and Creativity	Comes up with alternatives
Innovation and Creativity	Is effective in producing creative ideas

Innovation and Creativity	Is fluent in generating ideas
Innovation and Creativity	Produces imaginative solutions
Innovation and Creativity	Takes a radical approach
Innovation and Creativity	Thinks creatively
Innovation and Creativity	Uses less conventional methods
Action Orientated	Identifies urgent decisions
Action Orientated	Is decisive
Action Orientated	Makes decisions without delay
Action Orientated	Is able to make difficult decisions
Action Orientated	Is prepared to act on own account
Action Orientated	Is prepared to make tough decisions
Action Orientated	Is prepared to take calculated risks
Action Orientated	Makes quick decisions under pressure
Action Orientated	Is prepared to take the initiative
Action Orientated	Takes initiatives
Strategic	Shows an appreciation of corporate aims
Strategic	Relates team efforts to organisational goals
Strategic	Takes a broad view of own work
Strategic	Thinks in strategic terms
Strategic	Understands organisational strategy
Strategic	Works to clarify long term organisational goals
Strategic	Focuses on the longer term
Strategic	Integrates possibilities into broader visions
Strategic	Is effective in providing a strategic view
Strategic	Keeps sight of overall goals and objectives
Interpersonal Sensitivity	Supports others [colleagues]
Interpersonal Sensitivity	Shows tolerance [of others]
Interpersonal Sensitivity	Acknowledges the contributions of others
Interpersonal Sensitivity	Is a sympathetic listener
Interpersonal Sensitivity	Identifies with the team
Interpersonal Sensitivity	Shows [consideration and] concern for others
Interpersonal Sensitivity	Facilitates the work of others
Interpersonal Sensitivity	Is able to reconcile others in conflict
Interpersonal Sensitivity	Is tolerant of others
Flexibility	Reacts positively to change
Flexibility	Accepts new ideas
Flexibility	Is adaptable
Flexibility	Adapts own behaviour to suit new circumstances
Flexibility	Is able to modify approach in the face of new demands
Flexibility	Is flexible in approach
Flexibility	Is prepared to change own perspective
Flexibility	Is prepared to change own views on a subject
Flexibility	Responds positively when asked to change plans
Flexibility	Supports change initiatives
Resilient	Stays calm under pressure
Resilient	Is resilient
Resilient	Keeps control in stressful situations
Resilient	Is able to produce work under pressure
Resilient	Is self-controlled
Resilient	Bounces back from setbacks
Resilient	Copes well with disappointments
Resilient	Shrugs off past failures
Resilient	Comes to terms with past failures
Resilient	Responds well to setbacks

Personal Motivation	Takes on extra work [new work]
Personal Motivation	Is enthusiastic
Personal Motivation	Shows drive and determination
Personal Motivation	Seeks responsibility
Personal Motivation	Is determined to succeed
Personal Motivation	Pursues objectives energetically
Personal Motivation	Wants to get ahead in the organisation
Personal Motivation	Works long hours
Personal Motivation	Takes an energetic approach to work
Personal Motivation	Seeks career progression

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## 8 Appendix 2

### **Scripts for the somatic workshops**

#### Workshop One Agenda

- Welcome and introductions
- Outline of workshop programme and aims
- Active progressive relaxation
- Feedback from relaxation
- Issue CD and diary and confirm attendance at next session

## 8.1 *Workshop One Facilitators Notes*

- Introductions and Welcome
- Outline workshop aims

“In this series of workshops you’ll learn a set of skills that enables you to take control of the stress cycle by interrupting it at the physiological level rather than the psychological level. We’ll start with basic techniques then build up to very rapid and effective methods that you can use at any time to take control of your own stress reactions.

You can’t be relaxed and stressed at the same time so by being able to relax at will you’ll be able to take control of your stress.”

- Hand out diary sheets. Participant’s notes, notes on use of recordings, and use of diaries have already been issued.
- Review workshop timings :- today and the next three weeks, then again in seven weeks time, i.e., weeks one to four then again at week eight, after that two more brief session in weeks 12 and 24 for questionnaires only.
- “You can’t be relaxed and stressed at the same time. We will be using relaxation to break the stress cycle at the physiological level.”
- On to active progressive relaxation technique

## 8.2 *Script for active progressive relaxation*

We're going to start now with what is called active progressive relaxation. It's a technique that helps you become aware of tension in your body and also of the different feeling of relaxation.

Regular use of this relaxation technique has been shown to be effective at reducing stress and many of its physical symptoms like raised blood pressure, anxiety, tension, and sleep disturbance.

I'll take you through this now and, at the end of the session you can pick up the CD to use at least once every evening between now and next week's workshop. Practice is important. These are skills and skill takes practice. If you're comfortable working without the CD recording, go ahead. The recording is an aid, it's not compulsory.

To start with please make yourself comfortable in your seat. I don't want you to practice these techniques lying down as we're moving towards using relaxation in the workplace, and lying down is probably not something you'll do often in that situation.

First I'd like you to just sit comfortably with your feet flat on the floor, ankles uncrossed, and hands lying comfortably in your lap. To begin with take a deep breath in, and as you exhale just let your eyes close comfortably and then just keep breathing at whatever depth and rate is most comfortable for you.

While you're just breathing easily I'd like you to make a fist with your left-hand. ... Just make it tight enough that you can feel the tension in your hand and forearm. ... just tense your whole left arm and ... open your fist and relax your left arm completely. ... Let it go completely relaxed and limp. ... as you let that left arm and hand relax I'd like you to make a fist with your right-hand. ... Just make it tight enough that you can feel the tension in your hand and forearm. ... just tense your whole right arm and... open your fist and relax your right arm completely too. ... Both arms relaxed. Both arms completely relaxed and limp. ... I'd like you to just tense your shoulder muscles. Not too much just so you can feel some tension. ... You'll probably find your shoulders rise now so just let them drop and relax them too. ... Arms and shoulders relaxed, loose and limp.

As you continue to breath easily just momentarily screw up your face, as if you were a child pulling faces. ... let all those face muscles relax too. Let your jaw drop a little so that your upper and lower teeth are not touching ... All relaxed, hands, arms, shoulders, and face, all relaxed.

just let your attention be on the muscles of your chest and upper back ... and as you become aware of them just let them tense a little... now let them relax.

As you continue to breathe easily just comfortably tense the muscles of your stomach and lower back... Hold it just a few moments and... relax all those muscles too. Just letting your whole body and arms relax easily end pleasantly.

Moving on to your legs... Concentrate your attention on your left leg from the top of your thigh right down through your foot... just comfortably tense all those muscles of the left leg and foot. Hold for a few moments and... relax them. Let them go loose and limp.

Concentrate your attention on your right leg from the top of your thigh right down through your foot... just comfortably tense all those muscles of the right leg and foot, hold for a few moments and... relax them... Let them go loose and limp.

You have your whole body relaxed, I want you to spend a few minutes just letting your attention move over your body, feeling the relaxation and allowing the muscles to gradually relax even more as you do so. I'll give you two minutes to do that there we'll finish this relaxation.

Just starting the two minutes now.

**Time two minutes (Two minutes is a long time for the participants at this stage.)**

Now you've relaxed completely it's time to have a stretch, open your eyes and let yourself settle back into a comfortably relaxed wide-awake state. Open your eyes now. Take a deep breath. Stretch. (Role-play this.)

**END of SCRIPT**

How do you feel?

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

You'll get even better at this with practice.

Please do use the technique at least once a day, keep track in your diaries and bring them with you next time so I can collect them and give you new ones.

Thank you again for coming and I look forward to seeing you at the next session here on the ..... when we'll begin to build on what we've done today.

Will you be here next session? (Wait for acknowledgement spoken or indicated from each participant, and acknowledge back.)

Thank you. Take a CD or tape each and I'll see you next session.

### *8.3 Workshop Two Agenda*

- Welcome back
- Collect last weeks diaries and issue new ones
- Feedback from participants on use of last session's technique
- Passive progressive relaxation
- Feedback from relaxation
- Issue CD and diary and confirm attendance at next session

#### 8.4 *Workshop Two Facilitators Notes*

- Welcome back
- Collect diaries checking for clear names on each and issue new sheets
- Ask for feedback on participants' use of last sessions technique
  - **(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.** Note any specific issues that have arisen for participants. Possibilities are, muscle pain from the tense release cycle, not really feeling relaxed, getting bored with the technique, or feeling agitated or tense when using the technique. The first three should all be to some extent addressed by moving through the techniques from session to session. Agitation or tension may be a signal to remove participant from the programme if it is experienced again with the passive relaxation. Proceed with passive relaxation and be alert for signs of discomfort e.g. tearing with fidgeting, emphasised respiration, either fast and shallow or very deep and somewhat forced. Tearing is itself common in deep relaxation and is not necessarily a sign of discomfort. If you consider there is evidence of continuing discomfort, discuss this with the participant after the session and decide whether to discontinue.)
- Passive progressive relaxation



## 8.5 *Script For Passive Progressive Relaxation*

We're going to move onto the next stage in developing your skill in stress control now. Last week you did active progressive relaxation. This week we're going to move onto the passive progressive relaxation. Many people find they can relax much more deeply using this technique but it's much easier to do this if you've already learned the active method. The passive progressive relaxation is a little faster than last week's method and it does give you the foundation for developing the much faster methods we will get onto next week. Again, at the end of the session please take a CD and use it instead of last weeks at least once a day until next week's workshop.

Make yourself comfortable in your seat again, feet flat on the floor, ankles uncrossed, and hands lying easily in your lap. I'd like you to take a deep breath. ...And as you let that breath out I'd like you to just let your eyes close down comfortably. Take a deep breath...Close your eyes now. ... And just breath comfortably now in whatever way seems most comfortable to you. ...As you're sitting there comfortably now I'd like you to concentrate your attention on all the muscles in your left foot... In a moment I'm going to ask you to take a deep breath. Not too deep, just a little deeper than the comfortable breaths you're taking now, ... as you let that deep breath out I want you to relax all the muscles in that left foot. ...Take that deep breath now, and as you let it out ... relax that foot. Let it go loose and limp. Let yourself be aware of all the muscles of the left calf, and again in a moment I'll ask you to take a deep breath and relax. ... Take that deep breath now... and as you let it out relax all the muscles of that left calf. Let them go loose ...and limp, ...heavy, ... just like a handful of loose rubber bands.

...Moving up to the left thigh. Let yourself be aware of all the muscles in the left thigh.

...Just concentrate your attention there. Take a deep breath in... and as you let it out

...relax all those muscles of the left thigh completely, loose,... limp ...and heavy.

...Gradually allowing yourself to relax more and more. I'd like you to think about your right leg. ...I'd like you to just concentrate your attention on all the muscles in your right foot. ...In a moment I'm going to ask you to take a deep breath. Not too deep, just a little deeper than the comfortable breaths you're taking now, and as you let that deep breath out I want you to relax all the muscles in that right foot. ...Take that deep breath now, and as you let it out ... relax that foot. ...Let it go loose and limp. ...Let yourself be aware of all the muscles of the right calf, and again in a moment I'll ask you to take a deep breath and relax. ... Take that deep breath now ...and as you let it out ...relax all the muscles of that right calf. ...Let them go loose and limp, ...heavy, ...just like a handful of loose rubber bands... Moving up to the right thigh now. Let yourself be aware of all the muscles in the right thigh... Just concentrate your attention there... Take a deep breath in... and as you let it out ...relax all those muscles of the right thigh completely, ...loose, ...limp ...and heavy. Gradually allowing yourself to relax more and more... Let your attention move to your buttocks... Let yourself be aware of the muscles of the buttocks... Take that slightly deeper breath and as you let it out... relax those muscles completely... Moving up your body, concentrate on the muscles of your stomach and lower back... Just let yourself be aware of all the muscles of that area... In a moment again you'll take that deep breath and relax.... Take that deep breath now...and...relax. Let all those muscles relax, ...loose, ...limp ...and heavy,... just like a handful of loose rubber bands. I'd like you to move your attention to your left hand and forearm... Just let your attention be in that part of your body... Let yourself be aware of all the muscles in your left hand and forearm... Again, take that slightly deeper breath

in and as you let it out... relax all those muscles in that left hand and forearm... Move your attention up to the left upper arm... Let your attention be in that part of your body... Let yourself be aware of all the muscles in that left upper arm... Take a slightly deeper breath and as you breath out...relax all those muscles. Let them go loose,... limp... and heavy. I'd like you to move your attention to your right hand and forearm... Just let your attention be in that part of your body... Let yourself be aware of all the muscles in your right hand and forearm... Again, take that slightly deeper breath in and as you let it out... relax all those muscles in that right hand and forearm... Move your attention up now to the right upper arm... Let your attention be in that part of your body... Let yourself be aware of all the muscles in that right upper arm... Take a slightly deeper breath and as you breath out...relax all those muscles. Let them go loose, ...limp ...and heavy. Move your attention to your chest and upper back. Concentrate on all the muscles of your chest and upper back... In a moment I'll ask you to take that slightly deeper breath and then as you let it out to relax all those muscles of your upper body... Take that slightly deeper breath now, and as you let it out...relax those chest and back muscles completely,... loose, ...limp ...and lazy. Moving up to the muscles of your shoulders and neck... You'll find you can relax your neck comfortably just keeping your head in a comfortable position for yourself... You may want to move your head into a comfortable position... You find the most comfortable position for yourself as you let yourself be aware of all the muscles of your neck and shoulders now... And as you let yourself be aware of all the muscles in the neck and shoulders you take that slightly deeper breath and as you let it out...relax all those muscles, ...easily, ...comfortably... Moving to the last set of muscles, all the muscles of the head and face, right up over the top of the scalp and down the back of the head... Just let the jaw drop a little so that your upper and lower teeth are not touching and let yourself be aware of all the muscles of

the head and face and as you take that deep breath in and let it out and...relax all those muscles of the head and face, ...loose ...limp, ...lazy relaxed. As you're sitting relaxed in the chair I'm going to ask you to just let your attention move over your body and notice how you relax gradually more and more as you do so. I'll let you have just a few minutes to do that now.

**Time two minutes!**

You've relaxed completely and are learning to recognise and appreciate the feeling of complete relaxation... it's time to slowly open your eyes, stretch and let yourself settle back into a comfortable relaxed, wide awake state.

Open your eyes now ...and...stretch. **(Role-play this.)**

END of SCRIPT

How do you feel now?

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

Thank you again for coming and I look forward to seeing you at the next session when we will begin to develop your rapid relaxation skills to add to your daily exercises.

Don't forget to take your CD. Use it at least once a day and please do keep track of your actual use in your diaries. I'll collect them from you next time and give you new ones again. Will you be here next session? (Wait for acknowledgement spoken or indicated from each participant, and acknowledge back.)

Thank you. See you next session.

## 8.6 *Workshop Three Agenda*

- Welcome back
- Collect last weeks diaries and issue new ones
- Feedback from participants on use of last sessions technique
- Cue controlled or conditioned relaxation
- Feedback from cue controlled / conditioned relaxation
- Issue CD and diary and confirm attendance at next session

## 8.7 *Workshop Three Facilitators Notes*

- Welcome back
- Collect diaries checking for clear names on each and issue new sheets
- Ask for feedback on participants' use of last sessions technique

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

## 8.8 *Script for Cue controlled or conditioned relaxation*

We're going to develop your ability to relax quickly now, whenever and wherever you may need to do so. We're going to use the passive relaxation you already know as the base technique and add to it a verbal and physical cue that you can use to achieve rapid relaxation as you need it throughout your day. Sometimes this is referred to as an "on the spot" technique. This means it is a technique you can use at any time, even when other people are around you, without them being aware that you are doing any thing different. These on-the-spot techniques have been shown to be effective at reducing stress and anxiety. There is also evidence that people continue to use these techniques once they have learned them.

We'll start by getting you relaxed using the passive technique then add your cue. Then I'll get you to briefly practice using the cue.

Make yourself comfortable in your seat again, feet flat on the floor, ankles uncrossed, and hands lying easily in your lap. I'd like you to take a deep breath. And as you let that breath out I'd like you to just let your eyes close down comfortably. Take a deep breath...Close your eyes now... And just breath comfortably now in whatever way seems most comfortable to you. As you're sitting there comfortably I'd like you to just concentrate your attention on all the muscles in your left foot... In a moment I'm going to ask you to take a deep breath. Not too deep, just a little deeper than the comfortable breaths you're taking now, and as you let that deep breath out I want you to relax all the muscles in that left foot... Take that deep breath now, and as you let it out ... relax that foot. Let it go loose ...and limp. Let yourself be aware of all the muscles of the left calf, and again in a moment I'll ask you to take a deep breath and relax. ... Take that deep breath now and as you let it out ...relax all the muscles of that left calf. Let them go loose ...and limp, ...heavy,... just like a handful of lose rubber bands... Moving up to the left thigh. Let yourself be aware of all the muscles in the left thigh... Just concentrate your attention there. Take a deep breath in... and as you let it out ...relax all those muscles of the left thigh completely, ...loose, ...limp ...and heavy. Gradually allowing yourself to relax more and more. ... I'd like you to think about your right leg. I'd like you to just concentrate your attention on all the muscles in your right foot... In a moment I'm going to ask you to take a deep breath... Not too deep, just a little deeper than the comfortable breaths you're taking now, ...and as you let that deep breath out I want you to relax all the muscles in that right foot.... Take that deep breath now, and as



you let it out ... relax that foot. Let it go loose ...and limp... Let yourself be aware of all the muscles of the right calf, and again in a moment I'll ask you to take a deep breath and relax. ... Take that deep breath now and as you let it out ...relax all the muscles of that right calf. Let them go loose ...and limp, ...heavy, ...just like a handful of loose rubber bands... Moving up to the right thigh. Let yourself be aware of all the muscles in the right thigh... Just concentrate your attention there... Take a deep breath in... and as you let it out ...relax all those muscles of the right thigh completely, ...loose, ...limp ...and heavy. Gradually allowing yourself to relax more and more. ... let your attention move to your buttocks. Let yourself be aware of the muscles of the buttocks... take that slightly deeper breath and as you let it out... relax those muscles completely... moving up your body, concentrate on the muscles of your stomach and lower back... Just let yourself be aware of all the muscles of that area. In a moment again you'll take that deep breath and relax.... Take that deep breath now...and...relax. Let all those muscles relax, ...loose, ...limp ...and heavy, ...just like a handful of loose rubber bands...I'd like you to move your attention to your left hand and forearm. Just let your attention be in that part of your body... Let yourself be aware of all the muscles in your left hand and forearm. Again, take that slightly deeper breath in and as you let it out... relax all those muscles in that left hand and forearm... Move your attention up now to the left upper arm... Let your attention be in that part of your body... Let yourself be aware of all the muscles in that left upper arm. ... take a slightly deeper breath and as you breath out...relax all those muscles. Let them go loose, ...limp ...and heavy... I'd like you to move your attention to your right hand and forearm. Just let your attention be in that part of your body. Let yourself be aware of all the muscles in your right hand and forearm. Again, take that slightly deeper breath in and as you let it out... relax all those muscles in that right hand and forearm... Move your attention up now to the right upper

arm... Let your attention be in that part of your body. Let yourself be aware of all the muscles in that right upper arm... Now take a slightly deeper breath and as you breath out...relax all those muscles... Let them go loose,... limp ...and heavy. Now move your attention to your chest and upper back... Concentrate on all the muscles of your chest and upper back. In a moment I'll ask you to take that slightly deeper breath and then ...as you let it out to relax all those muscles of your upper body. Take that slightly deeper breath now, and as you let it out...relax those chest and back muscles completely,... loose,... limp ...and lazy. Moving up now to the muscles of your shoulders and neck. You'll find you can relax your neck comfortably just keeping your head in a comfortable position for yourself.... You may want to move your head into a comfortable position.... You find the most comfortable position for yourself as you let yourself be aware of all the muscles of your neck and shoulders now. And... as you let yourself be aware of all the muscles in the neck and shoulders you take that slightly deeper breath and as you let it out...relax all those muscles, ...easily, ...comfortably. Moving now to the last set of muscles, ...all the muscles of the head and face, right up over the top of the scalp and down the back of the head... Just let the jaw drop a little so that your upper and lower teeth are not touching and let yourself be aware of all the muscles of the head and face and as you take that deep breath in now and let it out and...relax all those muscles of the head and face, ...loose ...limp, ...lazy relaxed. In a moment I'm going to say one single word ...and as I do I want you to repeat the same word silently to yourself in your mind and notice all the good positive associations that go with that word... The word is "relax"... Relax... In a moment I'm going to ask you to take a deep breath again, just a little deeper than the ones you've been using so far... And as you let that breath out this time I want you to repeat the word "relax" silently in your mind and notice just how relaxed you are... Take that deep breath in now and...

relax... Just breathing easy now... In a moment we're going to do that again. Take a deep breath and link it to the word relax and the feeling of relaxed... Take a deep breath again now and ...as you breath out let that word "relax" ring silently through your mind and again ...feel how relaxed you are and know that you can now take a slightly deep breath and let it out while that word "relax" is silently in your mind and you are then relaxed while remaining completely in your normal state of full wide awake alertness... you have now established this relaxation cue for yourself... Relaxed and calm anytime and anywhere you want... You now know what relaxed feels like and can use the cue of a deep breath and the word relax to instantly achieve calm relaxation while fully alert... at any time ...and in any place you want ...or need to.

Take a deep breath again now and as you breath out let that word "relax" ring silently through your mind... and again feel how relaxed you are... and know that you can now take a slightly deep breath and let it out while that word "relax" is silently in your mind... and you are then relaxed while remaining completely in your normal state of full wide awake alertness... because you have now established this relaxation cue for yourself. Relaxed and calm anytime and anywhere you want... You now know what relaxed feels like and can use the cue of a deep breath and the word relax to instantly achieve calm relaxation while fully alert at any time and in any place you want or need to.

Now you've relaxed completely and established your rapid relaxation cue it's time to slowly open your eyes, stretch and let yourself again be just comfortably relaxed while wide awake and alert.

END of SCRIPT

How do you feel now?

**Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

Now just sitting as you are, in a moment I'm going to ask you to use your relaxation cue and you'll see how rapidly you can relax while staying fully alert.

Take a deep breath in now and...relax.

Check your arms relaxed, shoulders down.

(You can get participants to check each other's relaxation by gently lifting an arm and letting it fall back down by their side. It is not a good idea to have someone else drop an arm into their lap, especially for males!)

## **SCRIPT**

"The more you do this the more effective it will become for you. There's nothing for anyone else to see. You just relax as necessary. As I said right at the beginning of the first workshop, you can't be relaxed and stressed at the same time. So relax! People often tell you to relax, now you know how.

This cue controlled relaxation is the "on the spot" technique referred to in your diary so keep using your new cue controlled CD (don't forget to take one) at least once a day and also record in your diary your usage of the "on the spot" cue controlled relaxation throughout the day as well. I'll collect the diaries next session.

END of SCRIPT

Will you be here next session? (Wait for acknowledgement spoken or indicated from each participant, and acknowledge back.)

Thank you. See you next session.

## 8.9 *Workshop Four Agenda*

- Welcome back
- Administration of OSI-R
- Collect last weeks diaries and issue new ones for four weeks
- Feedback from participants on use of last sessions technique
- Differential relaxation
- Feedback from differential relaxation
- Issue diary and confirm attendance at next session

### *8.10 Workshop Four Facilitators Notes*

- Welcome and thank you for coming
- Administer OSI-R for second time

Collect last week's diaries and issue new four-week diaries

SCRIPT

"Now you've been using both the daily relaxation and the brief "on the spot" techniques, what's been your experience of them over the last week?"

END of SCRIPT

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

### *8.11 SCRIPT*

Now we're going to move onto the last of the new skills. After this workshop you will have learned not only the usual type of relaxation from sessions one and two, and the cue controlled relaxation from session three but also how to stay relaxed while you go about your daily work and leisure and how to take control in a situation that has already produced a strong emotional reaction in you.

This session we're doing what is called differential relaxation and then, finally, looking at some specific ways to apply those skills in difficult situations.

Let's start by doing a really quick relaxation.

- Sitting comfortably
- Feet flat on the floor
- Ankles uncrossed
- Eyes open
- Take a deep breath and as you let it out ... relax
- Just check your own body for tension and release it if you find it
- Shoulders down
- Arms relaxed
- Teeth parted
- Just stay relaxed as we continue

### *8.12 Script for Differential Relaxation*

Differential relaxation is about maintaining a relaxed state while you carry out your normal physical activities. Relaxing while sitting down may be pretty much routine for you now, but the aim of differential relaxation is to maintain relaxation while sitting, standing, walking, writing, working at a keyboard, drinking coffee, whatever!

You can't make any of the physical movements needed to do any of these things without using muscles. If you're using one hand and arm to write something, then that hand and arm can't be completely relaxed.

BUT

The other one can! You're not using it.

AND



Those muscles of your writing arm not actually being used for writing can still be relaxed.

This is where the idea of differential relaxation comes from. Those muscles you're not actually using can be relaxed while those you are using have only as much tension as is needed.

Before anyone can learn to use differential relaxation they have to be pretty familiar with what relaxation feels like, and that's part of what we've been doing up to now.

END of SCRIPT

#### Exercise One

Take a pen or pencil and a piece of paper

Put them in front of you ready to write

Now use your cue-controlled relaxation

Now, using only those muscles that you need to use with your writing hand, write something on the paper. Anything will do.

This may feel quite strange at first. Try at least keeping the non-active arm completely relaxed and floppy while you write with the other. You can have a partner check the non-active arm is relaxed by gently picking it up and letting it drop back while you are writing.

- Practice 1 –2 minutes. Check each participant's relaxation during the exercise.

Like all things it improves with practice.

## Exercise Two

Walking uses most of your muscles. Legs obviously, but also your postural muscles, but not everything.

Stand up

Let the shoulders and arms relax. Take a deep breath and ... relax them now

Arms and shoulders relaxed

Teeth separated

Walk. Move around. Be aware of maintaining relaxation in your shoulders, arms and jaw.

Again may feel rather strange at first.

- Practice briefly checking each participant's arms hands and shoulders for relaxation while walking.

## SCRIPT

Differential relaxation can be used at any time. You will improve and increase the number of different active situations you can use differential relaxation in as you practice it more. Like cue-controlled relaxation it is private to you. No one is aware that you are doing anything at all. As you remain relaxed when you chose to remain relaxed, you keep control of your stress. Use it often. Become aware of signs of physical tension in your body. Clenched teeth or raised shoulders are two of the most common. When you notice them, relax the shoulders or part the teeth. As you relax part of your body so you gain control of your reaction.

End of Exercise

Sit down. Be comfortable.

**Script for use of relaxation under emotional strain**

Despite your ability to relax there will be times when you get emotionally hijacked.

Daniel Goleman in his book “Emotional Intelligence” talks about the “emotional hijack” where the relatively primitive part of the brain called the limbic system reacts to things and begins an emotional reaction before we’ve consciously figured out what’s going on. Once underway such an emotional hijack can follow a cyclic progress much like the stress cycle we looked at earlier, i.e., it’s self-reinforcing. It can, like that stress cycle, be broken by relaxing, on the spot, fast. You can do that now by using your cue controlled or differential relaxation as on-the-spot techniques. The only added thing is to recognise an emotional reaction as it happens and make your decision once it may already be underway. Is it appropriate to, or do I want to, let this run? Or do I want to take control? If you want to take control, use your cue controlled or differential relaxation.

Prime stress related emotions such as, anger, fear, anxiety, can all be reduced or controlled this way.

This is not something that we can try in this workshop, but I’ll ask you to think about the kind of circumstances in which you might use this.

**END of SCRIPT**

Questions ?

**(Please use the facilitator’s note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group’s or any particular individuals.)**

Thanks for coming everyone. The next workshop will be in four weeks time so you will realise that your diaries cover four weeks this time, and I'll replace them at the next workshop.

Keep using your last relaxation CD. The more you use these brief techniques the better they work for you.

Will you be here next session? (Wait for acknowledgement spoken or indicated from each participant, and acknowledge back.)

See you next workshop.

### *8.13 Workshop Five (Week Eight) Agenda*

- Welcome back
- Collect last four weeks diaries and issue new ones for four weeks
- Feedback from participants on use of last sessions technique
- Repeat and reinforcement of relaxation techniques
- Confirm attendance at next session for diary collection and OSI-R IMC administration

### *8.14 Workshop Five Facilitators Notes*

- Welcome
- Collect and replace diaries (four week ones again)
- Ask for feedback on how things have gone.

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

- **Introduce practise of passive progressive relaxation and reinforcement of cue controlled and differential relaxation.**

### *8.15 SCRIPT*

In this workshop we're going to reinforce and practice your use of the cue controlled and differential relaxation.

Make yourself comfortable in your seat again, feet flat on the floor, ...ankles uncrossed, and hands lying easily in your lap. Take a deep breath. ... And as you let that breath out ...just let your eyes close down comfortably. ...Close your eyes now. And just breath comfortably in whatever way seems most comfortable to you. ...As you're sitting there comfortably now ... concentrate your attention on all the muscles in your left foot... In a moment I'm going to ask you to take a deep breath... Not too deep, just a little deeper than the comfortable breaths you're taking now, ...and as you let that deep breath out I

want you to relax all the muscles in that left foot... Take that deep breath now, and as you let it out ... relax that foot. Let it go loose ...and limp... Let yourself be aware of all the muscles of the left calf, and again in a moment I'll ask you to take a deep breath and relax. ... Take that deep breath now and as you let it out ...relax all the muscles of that left calf. Let them go loose ...and limp, ...heavy, ...just like a handful of loose rubber bands. Moving up to the left thigh now... Let yourself be aware of all the muscles in the left thigh... Just concentrate your attention there... Take a deep breath in... and as you let it out ...relax all those muscles of the left thigh completely, ...loose, ...limp ...and heavy... Gradually allowing yourself to relax more and more... Think about your right leg...Just concentrate your attention on all the muscles in your right foot... In a moment I'm going to ask you to take a deep breath... Not too deep, just a little deeper than the comfortable breaths you're taking now, and ...as you let that deep breath out I want you to relax all the muscles in that right foot... Take that deep breath now, and as you let it out ... relax that foot. Let it go loose ...and limp. ...Let yourself be aware of all the muscles of the right calf, and again in a moment I'll ask you to take a deep breath and relax. ... Take that deep breath now and as you let it out ...relax all the muscles of that right calf... Let them go loose ...and limp,... heavy, ...just like a handful of loose rubber bands. Moving up to the right thigh now... Let yourself be aware of all the muscles in the right thigh... Just concentrate your attention there... Take a deep breath in... and as you let it out ...relax all those muscles of the right thigh completely, loose, ...limp ...and heavy. Gradually allowing yourself to relax more and more... Let your attention move to your buttocks. Let yourself be aware of the muscles of the buttocks... Take that slightly deeper breath and as you let it out... relax those muscles completely... Now moving up your body, concentrate on the muscles of your stomach and lower back... Just let yourself be aware of all the muscles of that area. In a

moment again you'll take that deep breath and relax.... Take that deep breath now...and...relax. Let all those muscles relax, loose, ...limp ...and heavy, ...just like a handful of loose rubber bands... Move your attention to your left hand and forearm... Just let your attention be in that part of your body... Let yourself be aware of all the muscles in your left hand and forearm... Again, take that slightly deeper breath in and as you let it out... relax all those muscles in that left hand and forearm... Move your attention up now to the left upper arm... Let your attention be in that part of your body... Let yourself be aware of all the muscles in that left upper arm... Take a slightly deeper breath and as you breath out...relax all those muscles. Let them go loose,...limp ...and heavy... Move your attention to your right hand and forearm. Just let your attention be in that part of your body... Let yourself be aware of all the muscles in your right hand and forearm... Again, take that slightly deeper breath in and as you let it out... relax all those muscles in that right hand and forearm... Move your attention up to the right upper arm. Let your attention be in that part of your body... Let yourself be aware of all the muscles in that right upper arm...Take a slightly deeper breath and as you breath out...relax all those muscles. Let them go loose, ... limp ...and heavy... Move your attention to your chest and upper back... Concentrate on all the muscles of your chest and upper back... In a moment I'll ask you to take that slightly deeper breath and then as you let it out to relax all those muscles of your upper body. Take that slightly deeper breath now, and as you let it out...relax those chest and back muscles completely, ...loose, ...limp ...and lazy. Moving up now to the muscles of your shoulders and neck. You'll find you can relax your neck comfortably just keeping your head in a comfortable position for yourself... You may want to move your head into a comfortable position... You find the most comfortable position for yourself as you let yourself be aware of all the muscles of your neck and shoulders ... And as you let



yourself be aware of all the muscles in the neck and shoulders you take that slightly deeper breath and as you let it out...relax all those muscles, ...easily, ...comfortably. Moving now to the last set of muscles, all the muscles of the head and face, right up over the top of the scalp and down the back of the head... Just let the jaw drop a little so that your upper and lower teeth are not touching ...and let yourself be aware of all the muscles of the head and face and as you take that deep breath in now... and let it out and...relax all those muscles of the head and face, ...loose ...limp, ...lazy relaxed...

In a moment I'm going to say the word "relax" and as I do I want you to repeat the same word silently to yourself in your mind and notice all the good positive associations that go with that word. ... Relax. ...In a moment I'm going to ask you to take a deep breath again,... just a little deeper than the ones you've been using so far... And as you let that breath out this time I want you to repeat the word "relax" silently in your mind and notice just how relaxed you are... Take that deep breath in now and... relax. Just breathing easy now. In a moment we're going to do that again, take a deep breath and link it to the word relax and the feeling of relaxed... Take a deep breath again now and as you breath out... let that word "relax" ring silently through your mind... and again feel how relaxed you are and know that you can now take a slightly deep breath and let it out while that word "relax" is silently in your mind and you are then relaxed ....while remaining completely in your normal state of full wide awake alertness because you have now re-established this relaxation cue for yourself. ...Relaxed and calm anytime and anywhere you want... You now know what relaxed feels like and can use the cue of a deep breath and the word relax to instantly achieve calm relaxation while fully alert at any time and in any place you want or need to... And you know you can maintain that relaxation even when you are engaged in physical activity. That is what we have called differential relaxation when you keep relaxed all those muscles you are not actually

using... You now know what relaxed feels like and can use the cue of a deep breath and the word relax to instantly achieve calm relaxation while fully alert at any time and in any place you want or need to. ...And you know you can maintain that relaxation even when you are engaged in physical activity... That is what we have called differential relaxation when you keep relaxed all those muscles you are not actually using... Now you've relaxed completely and re-established your rapid relaxation cue and your differential relaxation it's time to slowly open your eyes, stretch and let yourself again be just comfortably relaxed while wide awake and alert.

Keep using your recordings, and practice the on-the-spot techniques, your cue controlled and differential relaxation, whenever you want to control or manage your stress at any time. The more you use them the more useful they are going to be for you.

END of SCRIPT

- Questions?

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

Thanks for participating.

Next meeting will be to collect diaries and do questionnaires.

Keep practicing!

## 9 Appendix 3

### *9.1 Scripts for the cognitive workshops*

#### Workshop One Agenda

- Welcome and introductions
- Outline of workshop programme and aims
- Basic visualisation and development of personal place
- Feedback from visualisation
- Issue CD and diary and confirm attendance at next session

## 9.2 *Workshop One Facilitators Notes*

- Introductions and Welcome
- Outline of workshop aims

“In this series of workshops you’ll learn a set of skills that enables you to take control of the stress cycle by interrupting it at the psychological level. We’ll start with basic techniques then build up to very rapid and effective methods that you can use at any time to take control of your own stress reactions.”

- Hand out diary sheets. Ask participants to keep them daily and bring them to the next session. Participant’s notes, notes on use of recordings and of diaries already issues.
- Review workshop timings :- today and the next three weeks, then again in seven weeks time, i.e., weeks one to four then again at week eight, after that two more brief session in weeks 12 and 24 for questionnaires only.
- “We’re going to start the cognitive series with a version of visualisation. We will be using visualisation to break the stress cycle at the apprehension and interpretation psychological level.”
- On to visualisation technique

### *9.3 Script for Visualisation for Cognitive Workshop One*

We're going to start now with your first visualisation technique. It's a technique that helps you develop your skill at using all your senses in visualisation and will help prepare you for the faster techniques in later workshops.

Regular use of these techniques has been shown to be effective at reducing stress and many of its physical symptoms like raised blood pressure, anxiety, tension, and sleep disturbance.

I'll take you through this now and, at the end of the session you can pick up the CD to use at least once every evening between now and next week's workshop. Practice is important. These are skills and skill takes practice. If you're comfortable working without the CD recording, go ahead. The recording is an aid, it's not compulsory.

To start with please make yourself comfortable in your seat. I don't want you to practice these techniques lying down as we're moving towards using relaxation in the workplace, and lying down is probably not something you'll do often in that situation.

First I'd like you to just sit comfortably... placing your feet flat on the floor... ankles uncrossed and hands lying comfortably in your lap and ... just close your eyes comfortably.

As you're sitting with your eyes closed we are going to construct a special place that you can take yourself to mentally, ... as the first stage in building your skill in stress relief and management.

As you're sitting with your eyes closed I want you to begin to think about and imagine a place that you will be able to mentally take yourself to ... where you will always be safe ... secure ... calm ... and private.

This can be any place you like. ... It may be a real place that you know and love, ... or it may be a completely imaginary place that you build in your mind to be perfect for yourself. ... Or it may be a real place that you alter in your imagination to make it even better than reality.

As you create and build this place in your mind I want you to engage all of your senses sight, ... sound, ... touch, ... taste, ... and smell.

While you're sitting with your eyes closed ... just begin to take yourself to that place ... now in your mind.

As you are building, ... and visualising, ... and creating that place your mind, I'm going to ask you several questions. ... These questions are for you to answer silently to yourself ... not to me, ... or to anyone else. ... As I ask these questions you just answer them for yourself ... and you may find that as you answer them they help you to build a complete and detailed place or location ... in your mind.

As you look around this place that you're constructing for yourself just notice ... are you inside or outside?

What time of day is it? ... Is it morning? ... Is it afternoon? ... Is it evening? ... Is it night-time?

Is the sky clear or are there clouds? ... If you're inside, look out of the windows to see.

If you're outside look around ... what can you see? Is it a green place full of trees or grasses, ... or is there sand and rocks around. ... Can you see any water, ... sea, ... river ... or lake?

If you're inside ... look around what can you see? ... What colour are the walls, ... where are the windows and doors? ... What furniture is in the room? ... What is the floor covering? ... Where are the lights? ... Are they on or off? ... If they are on ... are they dim or bright?

What can you hear? ... Is it completely quiet ... or are there some sounds?

What is the temperature? ... Is it warm, ... cool, ... is the air still ... or is there a breeze?

What can you smell? ... What aromas are in the air?

Walk around in this place. ... If you're wearing shoes in this place take them off. ... Feel the texture of the surface under your feet. ... As you walk ... as you move ... feel the movement of the air against you.

Whether you're inside or out, ... look around and notice that there is somewhere where you can sit or lie down comfortably.

Sit or lie down in that place. Make yourself comfortable. Close your eyes and rest a little while.

PAUSE

keeping your eyes closed, in your imagination, in your imaginary place only, open your eyes and walk around. If you were inside you may choose to go through the door and walk outside. If you were outside you may choose to go through a door and walk inside. Or you may choose just to walk around and explore the place you already are.

Notice that while you are in this place in your mind you are completely calm, confident and assured. Any and every time you bring yourself to this place in your mind you will find you will always be completely calm confident and assured.

I'm going to give you a few minutes of silence just to remain quietly exploring and enjoying the special place you have built in your mind. You may find that as you quietly explore things become more clear, more vividly imagined, and you feel more and more calm confident and assured, knowing that you can return to this place, or create new places, whenever you wish to.

**Time a one-minute pause.**



When you're ready, slowly open your eyes, and allow yourself to reorient back here fully aware, quiet and calm.

END of SCRIPT

How do you feel?

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

- **Discuss the creation and use of multiple “places” for use at different times and to suit different moods.**

“Some people create and use just one place for visualisation but many find it both fun and effective to create and use several different places to suit their mood and purpose in visualisation at different times. They may have some outside and some inside places, some real places and some completely imaginary or even fantastic places. You can also move from place to place as much as you like during a session of that suits you.”

- **(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

You'll get even better at this with practice.

Please do use the technique at least once a day, keep track in your diaries and bring them with you next time so I can collect them and give you new ones.

Thank you again for coming and I look forward to seeing you at the next session here when we'll begin to build on what we've done today.

Will you be here next session? (Wait for acknowledgement spoken or indicated from each participant, and acknowledge back.)

Thank you. Take a CD each and I'll see you next session.

#### *9.4 Workshop Two Agenda*

- Welcome back
- Collect last weeks diaries and issue new ones
- Feedback from participants on use of last session's technique
- Guided Receptive Visualisation
- Feedback from guided receptive visualisation
- Issue CD and diary and confirm attendance at next session

## 9.5 Workshop Two Facilitators Notes

- Welcome back
- Collect diaries checking for clear names on each and issue new sheets
- Ask for feedback on participants' use of last session's technique
  - **(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**
  - Note any specific issues that have arisen for participants. A possibility is feeling agitated or tense when using the technique. Agitation or tension may be a signal to remove participant from the programme if it is experienced again with the guided receptive visualisation. Proceed and be alert for signs of discomfort e.g. tearing with fidgeting, emphasised respiration, either fast and shallow or very deep and somewhat forced. Tearing is itself common in intense visualisation and is not necessarily a sign of discomfort. If you consider there is evidence of continuing discomfort discuss with the participant after the session and decide whether to discontinue.)

## 9.6 *Script for Guided Receptive Visualisation*

We're going to move onto the next stage in developing your skill in stress control now. Last week you did basic visualisation. This week we're going to move onto the guided receptive visualisation. Many people find they can visualise much more strongly using this technique but it's much easier to do this if you've already learned the basic method. The guided receptive visualisation is no faster than last week's method but it does give you the foundation for developing the much faster methods we will get onto next week. We begin this week to be specific about visualising for stress control. During the session I will suggest some of the kinds of image that may occur to you for stress or calm. I'll give these as examples and if they really suit you by all means use them, but you will probably find that other images will occur to you that have more meaning for you. These may be concrete images relating to things and situations that create stress for you, but you will probably also find more abstract images and ideas coming to you as well. The subconscious often uses abstract images and analogies to represent things, just as when you dream. Your own images are probably going to be more effective for you if they have more meaning for you than the examples I use. Again, at the end of the session please take a CD and use it instead of last weeks at least once a day until next week's workshop.

### **Guided Receptive Visualisation**

I'd like you to just sit comfortably... placing your feet flat on the floor... ankles uncrossed and hands lying easily in your lap, just close your eyes comfortably.

You're sitting with your eyes closed I want you to begin to think about and imagine the place, or one of the places if you have more than one, that you have been building in your mind during the week since the last workshop.

As you create and build this place in your mind I want you to engage all of your senses sight, ... sound, ... touch, ... taste, ... and smell.

While you're sitting with your eyes closed ... just begin to take yourself to that place ... in your mind.

As you are visualising, ... and recreating that place in your mind, I'm going to ask you several questions. ... These questions are for you to answer silently to yourself ... not to me, ... or to anyone else. ... As I ask these questions you just answer them for yourself ... you may find that as you answer them they help you to make a complete and detailed place or location ... in your mind.

As you look around this place that you're taking yourself to, just notice ... are you inside or outside?

What time of day is it? ... Is it morning? ... Is it afternoon? ... Is it evening? ... Is it night-time?

Is the sky clear or are there clouds? ... If you're inside, look out of the windows to see.

If you're outside look around ... what can you see? Is it a green place full of trees or grasses, ... or is there sand and rocks around. ... Can you see any water, ... sea, ... river ... or lake?

If you're inside ... look around ... what can you see? ... What colour are the walls, ... where are the windows and doors? ... What furniture is in the room? ... What is the floor covering? ... Where are the lights? ... Are they on or off? ... If they are on ... are they dim or bright?

What can you hear? ... Is it completely quiet ... or are there some sounds?

What is the temperature? ... Is it warm, ... cool, ... is the air still ... or is there a breeze?

What can you smell? What aromas are in the air?

Walk around in this place. ... If you're wearing shoes in this place take them off. ... Feel the texture of the surface under your feet. ... As you walk ... as you move ... feel the movement of the air against you.

Whether you're inside or out, ... look around and notice that there is somewhere where you can sit or lie down comfortably.

Sit or lie down in that place. Make yourself comfortable. Close your eyes and rest a little while.

PAUSE (brief untimed)

Notice that while you are in this place in your mind you are completely calm, confident and assured. Any and every time you bring yourself to this place in your mind you will find you will always be completely calm confident and assured.

You're resting, in your place, ...I want you to let your mind drift a bit and as you do that let your mind create images that represent stress for you. ...You may find that, as you create these images you begin to notice some feelings of stress within yourself. That's fine, it's completely under your control. If the feeling becomes too strong just release the image let it go, and the feelings go with it.

Real images and ideas that you create may relate to particular situations or people at work. ... Imaginary images and ideas may be almost anything that seems to have meaning for you. ... These are private images, for you alone. They may have no meaning for others. ... Use all your senses again. Image may mean a picture, ...or a smell, ...a sound, ...a tactile feeling, ...or very possibly a combination of all of these. As you did when you created this place, give as many dimensions as possible to your images. Images that have had meaning for some people for stress are,

hot metal, its look, smell, the sense of heat, and the ticking sound of its expansion,

Rope being wound up tight, its smell, the look of it as it winds up, the creak as it is put under strain, perhaps the roughness of its texture as you touch it.



Pounding jackhammers, the jarring sound of them, the smell of their fumes, the dust in the air, the gritty taste in your mouth, the vibration you can feel in the ground or in your hands and arms if you're holding one.

Others will occur to you. ... Let them come, ...examine them, ... keep, or remember a few of those that really seem powerful for you.

I'll give you few minutes of silence to create and select some images now.

**Pause for one minute.**

Now that you have some stress images that have meaning for you I want you to briefly bring to mind the one you found most powerful for you and then create its opposite, perhaps if it were something like hot metal then the opposite may be cool, smooth steel with its slick polished surface, strength, clean finish, solid weighty feel and no smell, just clean air.

If it were rope wound tight then it unwinds and is slack, soft, sweet smelling and clean, perhaps neatly coiled.

Jackhammers cease pounding, the silence is profound and calming, vibration ceases and the air tastes clean and cool.

As you create the opposite images notice how they create the opposite of stress for you. Notice how these images leave you calm, confident and assured.

I'm going to give you two minutes now to create and develop these opposite calming images for yourself now and to let yourself think about them and allow yourself to enjoy those feelings of calm assured confidence.

**Pause for timed two minutes.**

When you're ready, slowly open your eyes, and allow yourself to reorient back here fully aware, quiet and calm.

Open your eyes now ...and...stretch. **(Role-play this.)**

END of SCRIPT

How do you feel now?

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

Thank you again for coming and I look forward to seeing you at the next session when we will begin to develop your rapid on the spot skills to add to your daily exercises.

Don't forget to take your CD. Use them at least once a day and please do keep track of your actual use in your diaries. I'll collect them from you next time and give you new ones again. Will you be here next session? (Wait for acknowledgement spoken or indicated from each participant, and acknowledge back.)

Thank you. See you next session.

### 9.7 *Workshop Three Agenda*

- Welcome back
- Collect last weeks diaries and issue new ones
- Feedback from participants on use of last sessions technique
- Use of non-stress images and affirmations
- Feedback
- Issue CD and diary and confirm attendance at next session

## 9.8 *Workshop Three Facilitators Notes*

- Welcome back
- Collect diaries checking for clear names on each and issue new sheets
- Ask for feedback on participants' use of last sessions technique

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

## 9.9 *Script for Development of on-the-spot image use*

“We’re going to develop your ability to quickly take control of stress reactions now, whenever and wherever you may need to do so. We’re going to use the guided visualisation you already know as the base technique and add to it the use of image cues that you can use to achieve rapid calm control as you need it throughout your day. Sometimes this is referred to as an “on the spot” technique. This means it is a technique you can use at any time, even when other people are around you, without them being aware that you are doing any thing different. These on-the-spot techniques have been shown to be effective at reducing stress and anxiety. There is also evidence that people continue to use these techniques once they have learned them. Between this session and next you also have some homework to prepare for next time!

## **Development of on-the-spot images**

I'd like you to just sit comfortably... placing your feet flat on the floor... ankles uncrossed and hands lying easily in your lap...and now just close your eyes comfortably. We're going to go faster into your visualised place now and you'll find you can do this easily now.

As you're sitting with your eyes closed ... begin to think about your favourite place, that you have been using during the week since the last workshop.

Again, engage all of your senses sight, ... sound, ... touch, ... taste, ... and smell.

While you're sitting with your eyes closed ... just begin to take yourself to that place ... in your mind.

As you look around... are you inside or outside?

What time of day is it?

Is the sky clear or are there clouds?

If you're outside look around ... what can you see?

If you're inside ... look around what can you see?

What can you hear? ... Is it completely quiet ... or are there some sounds?

What is the temperature? ... Is it warm, ... cool, ... is the air still ... or is there a breeze?

What can you smell? What aromas are in the air?

Walk around in this place. ... If you're wearing shoes in this place take them off. ... Feel the texture of the surface under your feet. ... As you walk ... as you move ... feel the movement of the air against you.

Whether you're inside or out, ... look around and notice that there is somewhere where you can sit or lie down comfortably.

Sit or lie down in that place. Make yourself comfortable. Close your eyes and rest a little while.

PAUSE (brief untimed)

Notice again that while you are in this place in your mind you are completely calm, ...confident and assured. Any and every time you bring yourself to this place ...you will find you will always be completely calm ...confident ...and assured.

As you're resting, in your place, let your mind just drift a bit ...and as you do that let your mind move on to those images that represent the opposite of stress for you... You may find that stress images flash briefly in your mind first. That's fine, just reverse them and hold the reversed image. You may have developed several good images that reverse stress for you during the last week... These are images of calm, ...images of

confidence,... images of assurance... Look at them one at a time... Experience them fully with every sense you can engage. ...What do they look like? ...What do they smell like? ...How do they sound? ...How do they feel? ...Do they have a taste?... Go through them slowly now and notice the positive effect they have on your mental state... Calm, ...confident, ...assured... As you bring each image to mind ...and allow all your senses to engage in your imagination,... notice how it produces that good state in you... As you notice that, ...realise that you can call this image to mind briefly at any time, ...in any situation, ...with your eyes wide open... As you do so you achieve the same good state, ...calm, ...confident, ...assured, ...while going about your business as usual.

Pause (brief untimed)

As you bring each image to mind and allow all your senses to engage in your imagination, ...notice how it produces that good state in you... As you notice that, realise that you can call this image to mind briefly at any time, ...in any situation, ...with your eyes wide open... As you do so you achieve the same good state, ...calm, ...confident, ...assured, while going about your business as usual.

**Pause (brief untimed)**

Allow yourself to bring to mind images of any of the kinds of situation that has been able to produce stress for you in the past... As you bring that to mind see and feel yourself in that situation ...and as you do so think also of your most powerful calming image and see yourself calm, ...confident ...and assured in that situation that has no



more power over you... I'll give you a few minutes now to practice extinguishing stress in situations using your calm images.

**Pause two minutes**

Realise now that you can use this technique anytime in your normal active working situation to take control of any stress in your day in real situations. As you briefly bring to mind any of your potent calming images you are calm, ...confident, ...and assured, ...able to handle the situation with calm and dignity, ...feeling good.

Realise now that you can use this technique anytime in your normal active working situation to take control of any stress in your day in real situations. As you briefly bring to mind any of your potent calming images you are calm, ...confident, ...and assured, ...able to handle the situation with calm and dignity, ...feeling good.

The more often you use this in your day the more effective it becomes for you.

When you're ready, slowly open your eyes, and allow yourself to reorient back here fully aware, quiet and calm.

END of SCRIPT

How do you feel now?

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

SCRIPT

“Now just sitting as you are, in a moment I’m going to ask you to bring to mind any of your calm images and notice that you can do so very quickly while staying fully alert. Remember to engage as many of your sense as possible. Although we talk about visualisation it is really much more.

OK just briefly bring any to mind now and see how quickly it can flash into your mind without interrupting your train of thought. That’s how you can use it while you’re actively working.”

END of SCRIPT

How was that?

**(Please use the facilitator’s note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group’s or any particular individuals.)**

SCRIPT

“The more you do this the more effective it will become for you. There’s nothing for anyone else to see. You just use the images as necessary. You can’t be calm and stressed at the same time. So be calm!

This rapid use of your images is the “on the spot” technique referred to in your diary so keep using your new CD (don’t forget to take one) at least once a day and also record in your diary your usage of the “on the spot” technique throughout the day as well. I’ll collect the diaries next session.”

This week you have homework! There are some brief notes here on the development of effective affirmations. Affirmations are a very misunderstood and generally misused technique. But used properly they are effective. For your homework I'd like you to use the notes and the worksheet that is with them to develop just a few positively phrased "anti-stress" affirmations for you to begin using next session.

END of SCRIPT

Will you be here next session? (Wait for acknowledgement spoken or indicated from each participant, and acknowledge back.)

Thank you. See you next session.

## *9.10 Participant Notes*

### *9.10.1 The Development and Use of Affirmations*

Affirmations can be very effective for use in personal development and stress management. There are some fundamental, but often misunderstood or misused, rules for making sure they are effective. (It is usually misuse of affirmations that has resulted in the dismissive way they are sometimes regarded.)

The Five P's of Affirmations

Effective affirmations will be: -

- Positive
- Present tense
- Personal
- Persuasive
- Private

Positive

Effective affirmations are phrased in a positive manner, e.g., “I am not stressed” is a negative phrasing that will tie the mind to the idea of stress first and is therefore unlikely to be effective as a stress relieving affirmation. To build an affirmation that is positively phrased, think of the opposite of stress and build a positive statement around that, e.g., “I am calm.” This is a positive statement that does not first raise the image of that which is unwanted.

Present tense

In our internal mental world we live in the eternal now. Affirmations, therefore, also have to be “now”, “I will be calm.” doesn’t specify when. “I am calm,” is likely to be much more effective.

Personal

The above affirmations have all started with “I”. That is not accidental. Effective affirmations refer to the self directly, i.e., they are personal. “I am...” “I have...” “I do...” etc.

Persuasive

Most of us restrict our use of language to relatively unemotional, perhaps even bland, phraseology in everyday use, especially in the workplace. This has no place in the development of effective affirmations. Use emotional language. It is emotions you want to engage. Affirmations are another aspect of visualisation and, like visualisation, as many of the senses as possible should be engaged. E.g., “I have complete and absolute confidence and boundless energy.” Rather than “I am confident.” Make them as extreme in language as you like, the more so the better! (No one else ever needs to hear them)

#### Private

Affirmations are not for public consumption. They are your private and personal tools to achieve your own ends. It is their private nature that helps to allow the use of emotional language and superlatives in their construction.

#### Belief

A final, but crucially important point about affirmations is that belief is not necessary. In many cases when using an affirmation the statement will go directly against current physical or emotional evidence and feel like (or actually be) a lie. Use it anyway. Repeat it. You don’t need to believe it.

### **The Development of Affirmations**

Brainstorm some statements about stress control, stress relief, being calm, in control, etc. without worrying if they obey the rules for affirmations or not. For most it is easier to think of statements that may well be negatively phrased first.

Write these statements in the left hand column of your affirmation worksheet.

In the right hand column of the worksheet develop equivalent statements that do obey the rules.

Use the right hand versions as your affirmations starting during next weeks session.

Continue to develop and refine them as your skill increases to produce a small set of effective affirmations tailored to your stress management and relief needs.

Bring your worksheet with you to the next workshop.

## Affirmation Worksheet

Initial Statements	Affirmation equivalent that obeys the five P's

### *9.11 Workshop Four Agenda*

- Welcome back
- Administration of OSI-R
- Collect last weeks diaries and issue new ones for four weeks
- Feedback from participants on use of last sessions technique
- Development of Affirmations
- Feedback from Affirmations
- Issue diary and confirm attendance at next session

## *9.12 Workshop Four Facilitators Notes*

- Administer OSI-R for second time

Collect last week's diaries and issue new four-week diaries

SCRIPT

Now you've been using both the daily visualisation and the brief "on the spot" techniques, what's been your experience of them over the last week?

END of SCRIPT

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

SCRIPT

Now we're going to move onto the last of the new skills. After this workshop you will have learned not only visualisation from sessions one and two, and the on-the-spot technique from session three but also how to develop and use effective self-statements or affirmations to take control in a situation that has already produced a strong emotional reaction in you.

END of SCRIPT

### **Affirmations**

You had some homework from last session. You all have some affirmations prepared?

Keep them private.

Make sure they obey the five Ps

- The five Ps for developing and using affirmations (covered in participant notes)
  - Positive



- Present tense
- Personal
- Persuasive
- Private
- We're now going to use visualisation to reinforce the affirmations with visualisation,

### *9.13 Script for use of images and affirmations*

Just sit comfortably... placing your feet flat on the floor... ankles uncrossed and hands lying easily in your lap...and just close your eyes comfortably.

As you're sitting with your eyes closed, begin to think about your favourite place, that you have been using.

Engage all of your senses sight, ... sound, ... touch, ... taste, ... and smell.

While you're sitting with your eyes closed ... just begin to take yourself to that place ... in your mind.

Imagine it completely using all of your senses.

Walk around in this place. ... Feel the texture of the surface under your feet. ... As you walk ... as you move ... feel the movement of the air against you.

Whether you're inside or out, ... sit or lie down in that place. Make yourself comfortable. Close your eyes and rest a little while.

PAUSE (brief untimed)

Notice again that while you are in this place in your mind you are completely calm, ...confident ...and assured... Any and every time you bring yourself to this place you will find you will always be completely calm ...confident ...and assured.

As you're resting, in your place, let your mind drift a bit ..and as you do that ... recall the affirmations you have developed for yourself... As you continue to be comfortable in your place affirm to yourself the statements you have developed... Always use the first person and present tense. "I am ..." "I have ..." "I can ..." or whatever form you use... As you bring each affirmation to mind allow all your senses to engage in your imagination, and notice how it produces a good state in you... As you notice that, realise that you can call these affirmations to mind briefly at any time, ...in any situation, ...with your eyes wide open... As you do so you achieve the same good state, calm, confident, assured, while going about your business as usual.

Pause (brief untimed)

As you bring each affirmation to mind ...and allow all your senses to engage in your imagination, ...notice how it produces that good state in you... As you notice that, ...realise that you can call these affirmations to mind briefly at any time, ...in any

situation, ...with your eyes wide open... As you do so you achieve the same good state, ...calm, ...confident, ...assured, while going about your business as usual.

### **Pause (brief untimed)**

When you're ready, slowly open your eyes, and allow yourself to reorient back here fully aware, quiet and calm.

Affirmations can be used at any time. You will improve and increase the number of different active situations you can use affirmations in as you practice them more. They are private to you. No one is aware that you are doing anything at all. As you use affirmations and visualisation when you chose to remain calm, you keep control of your stress.

### **Use of visualisation and affirmation under emotional strain**

Despite the skills you have learned there will be times when you get emotionally hijacked. Daniel Goleman in his book “Emotional Intelligence” talks about the “emotional hijack” where the relatively primitive part of the brain called the limbic system reacts to things and begins an emotional reaction before we’ve consciously figured out what’s going on. Once underway such an emotional hijack can follow a cyclic progress much like the stress cycle we looked at earlier, i.e., it’s self-reinforcing. It can, like that stress cycle, be broken by changing either your apprehension of the situation or your interpretation of the feelings, on the spot, fast. You can do that now by using your images or affirmations as on-the-spot techniques. The only added thing is to

recognise an emotional reaction as it happens and make your decision once it may already be underway. Is it appropriate to, or do I want to, let this run? Or do I want to take control? If you want to take control, use your affirmations or visualisation.

Prime stress related emotions such as, anger, fear, anxiety, can all be reduced or controlled this way.

This is not something that we can try in this workshop, but I'll ask you to think about the kind of circumstances in which you might use this.

### **END of SCRIPT**

Questions ?

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

Thanks for coming everyone. The next workshop will be in four weeks time so you will realise that your diaries cover four weeks this time, and I'll replace them at the next workshop.

Please take your CD before you leave. The more you use these brief techniques the better they work for you.

Will you be here next session? (Wait for acknowledgement spoken or indicated from each participant, and acknowledge back.)

See you next workshop.

#### *9.14 Workshop Five (Week Eight) Agenda*

- Welcome back
- Collect last four weeks diaries and issue new ones for four weeks
- Feedback from participants on use of last sessions technique
- Repeat and reinforcement of visualisation and affirmation techniques
- Confirm attendance at next session for diary collection and OSI-R IMC administration

### *9.15 Workshop Five Facilitators Notes*

- Welcome
- Collect and replace diaries (four week ones again)
- Ask for feedback on how things have gone.

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

- Revise use of visualisation script to reinforce affirmations with visualisation,

### *9.16 Script for use of images and affirmations*

In this workshop we're going to reinforce and practice your use of images and affirmations

Make yourself comfortable in your seat again... placing your feet flat on the floor... ankles uncrossed and hands lying easily in your lap... and now just close your eyes comfortably.

As you're sitting with your eyes closed I want you to begin to think about and imagine the place, or one of the places if you have more than one, that you have been building in your mind during the week since the last workshop.

As you create and build this place in your mind... engage all of your senses sight, ... sound, ... touch, ... taste, ... and smell.

While you're sitting with your eyes closed ... just begin to take yourself to that place ... in your mind.

As you are visualising, ... and recreating that place in your mind, I'm going to ask you several questions. ... These questions are for you to answer silently to yourself ... not to me, ... or to anyone else. ... I ask these questions ...you answer them for yourself ... and you may find that as you answer them they help you to make a complete and detailed place or location ... in your mind.

As you look around this place that you're taking yourself to, just notice ... are you inside or outside?

What time of day is it? ... Is it morning? ... Is it afternoon? ... Is it evening? ... Is it night-time?

Is the sky clear or are there clouds? ... If you're inside, look out of the windows to see.

If you're outside look around ... what can you see? Is it a green place full of trees or grasses, ... or is there sand and rocks around. ... Can you see any water, ... sea, ... river ... or lake?

If you're inside ... look around what can you see? ... What colour are the walls, ... where are the windows and doors? ... What furniture is in the room? ... What is the floor covering? ... Where are the lights? ... Are they on or off? ... If they are on ... are they dim or bright?

What can you hear? ... Is it completely quiet ... or are there some sounds?

What is the temperature? ... Is it warm, ... cool, ... is the air still ... or is there a breeze?

What can you smell? What aromas are in the air?

Walk around in this place. ... If you're wearing shoes in this place take them off. ... Feel the texture of the surface under your feet. ... As you walk ... as you move ... feel the movement of the air against you.

Whether you're inside or out, ... look around and notice that there is somewhere where you can sit or lie down comfortably.

Now sit or lie down in that place. Make yourself comfortable. Close your eyes and rest a little while.

PAUSE (brief untimed)

Notice again that while you are in this place in your mind you are completely calm, confident and assured... Any and every time you bring yourself to this place you will find you will always be completely calm ...confident ...and assured.



As you're resting, in your place, ...let your mind drift a bit and as you do that ... recall the affirmations you have developed for yourself. As you continue to be comfortable in your place affirm to yourself the statements you have developed... As you bring each affirmation to mind allow all your senses to engage in your imagination,... and notice how it produces a good state in you. As you notice that, realise that you can call these affirmations to mind briefly at any time,... in any situation, ...with your eyes wide open... As you do so you achieve the same good state, ...calm, ...confident, ...assured, while going about your business as usual.

Pause (brief untimed)

As you bring each affirmation to mind and allow all your senses to engage in your imagination, ...notice how it produces that good state in you... As you notice that, realise that you can call these affirmations to mind briefly at any time, ...in any situation,... with your eyes wide open... as you do so you achieve the same good state, ...calm, ...confident, ...assured, while going about your business as usual.

**Pause (brief untimed)**

When you're ready, slowly open your eyes, and allow yourself to reorient back here fully aware, quiet and calm.

END of SCRIPT

Questions?

**(Please use the facilitator's note sheet to record the general tenor of responses and participation and any responses that you think may affect either the group's or any particular individuals.)**

Keep using your last recordings, and practice the on-the-spot techniques, your visualisation and affirmations, whenever you want to control or manage your stress at any time. The more you use them the more useful they are going to be for you.

Thanks for participating.

Next meeting will be to collect diaries and do questionnaires.

Keep practicing!

## 10 Appendix 4

**Information and consent forms approved by AUTECH for this study**

# Participant Information Sheet

## **Stress Management Techniques: Their Effect on Strain and Performance in managers**

Thank you for your interest in this study of stress management techniques and their effects on strain and performance in managers. As a manager in a commercial organisation you are invited to take part in this research project.

The purpose of this project is to compare two slightly different approaches to stress management and see how effective each one is at both reducing personal stress levels (strain) and at improving managers' performance.

You have been chosen to be invited to take part in this study because you are in a managerial position of authority, in a commercial organisation that has consented to allow members of its management team to be involved in this research. Your organisation is supportive of this project and your involvement in it but participation is entirely voluntary on your part. Your participation, or non-participation, in this study will neither advantage nor disadvantage you in your employment in any way.

We hope that you will join us in this research effort to improve effective stress management for managers.

What are the benefits?

By participating in this study you will learn effective methods of managing stress in a series of small group workshops. The techniques used in this study have been shown to be effective at reducing the symptoms of stress in previous studies but have not been directly compared before. You will also take part in partial 360° competency assessments in which the answers from you, one of your peers, and one of your subordinates (both chosen by you) are combined into one composite report. The results of these will be used anonymously in the study but your results will be available on a private and confidential basis to you if you want to receive them. Your data will not be made available to any other party. This 360° survey, the Inventory of Management Competencies, has been widely used in commercial settings to help senior managers improve their performance on the basis of the detailed feedback it can provide. If you wish to take advantage of the 360° feedback opportunity then you will receive a private one to one feedback session with a qualified consultant, Mark Le Fevre, who is one of the research team.

What happens in the study?

Participants in the study will all be trained in the stress management techniques and will all complete questionnaires on stress and burnout. The stress and burnout questionnaires will be repeated four times during the trial. Participants will also complete partial 360° assessments by selecting one peer and one subordinate of their choice to provide confidential feedback as above. The 360° assessments will be repeated three times during the trial. The same peer and subordinate should complete all three assessments. The trial will run over a total time period of 26 weeks after which individual 360° feedback will be available for a further six weeks. There

will be several different test groups in the trial, each operating to a slightly different timing and using a different stress management technique. Participants will be allocated to a group by the research team. Allocation to any particular group will not advantage or disadvantage any participant.

The maximum time commitment for any participant will be six workshops, one of approximately 90 minutes and five of approximately 45 minutes, and three brief meetings to complete questionnaires. Some groups may have fewer workshops than this maximum. In addition you may be invited to take part in an interview after the end of the trial period. Again your participation in the interview is entirely voluntary.

Neither you nor your organisation will be identifiable in the reports of this research.

You will be allocated a random identifying number that will be used to correlate all data relating to you for analysis. After all individual 360<sup>o</sup> feedback has been given, all personal identifiers will be removed from the database rendering all information anonymous.

This project forms part of the doctoral studies of Mark Le Fevre. The findings of this study will be published and presented at conferences. No material that could identify you will be used in any of these publications or presentations.

We sincerely hope you will take part in this project and help us to develop proven, effective, brief, stress management techniques for managers. If you would like more information or have any questions at all please contact Mark Le Fevre at the addresses given below.

Please complete the accompanying consent form and return to Mark Le Fevre to be a part of this research effort.

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Professor Gregory Kolt, [gregory.kolt@aut.ac.nz](mailto:gregory.kolt@aut.ac.nz), 917 9999 Ext 7774. Concerns regarding the conduct of the research should be notified to the Executive Secretary, AUTEK, Madeline Banda, [madeline.banda@aut.ac.nz](mailto:madeline.banda@aut.ac.nz), 917 9999 ext 8044.

**Thank you for your interest.**

**Mark Le Fevre  
C/o Research Office  
Faculty of Health  
Auckland University of Technology  
Private Bag 92006  
Auckland 1020  
Phone 917 9999 Ext 7268  
Mobile 021 704 748  
e-mail [mark.lefevre@aut.ac.nz](mailto:mark.lefevre@aut.ac.nz)**

**Approved by the Auckland University of Technology Ethics Committee on 26 May 2003.  
AUTEK Reference number 03/76**

## Consent to Participation in Research

Title of Project: **Stress Management Techniques:  
Their Effect on Strain and  
Performance in managers**

Principal Researcher: **Professor Gregory Kolt**

Researcher: **Mark Le Fevre**

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- I have read and understood the information provided about this research project.
- I have had an opportunity to ask questions and to have them answered.
- I understand that I may withdraw myself, or any information that I have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way.
- I agree to take part in this research.

Participant signature: .....

Participant name: .....

Daytime Contact Phone number .....

e-mail .....

Date: ...../...../200.....

Project Supervisor Contact Details: Professor Gregory Kolt  
Research Office  
Faculty of Health  
Auckland University of Technology  
Private Bag 92006  
Auckland 1020  
Phone 917 9999 Ext 7774  
e-mail [gregory.kolt@aut.ac.nz](mailto:gregory.kolt@aut.ac.nz)

**Approved by the Auckland University of Technology Ethics Committee on 26 May 2003**  
**AUTEC Reference number 03/76**

## 11 Appendix 5

**Table 11-1 Example workshop timetable**

<b>Location:</b>		<b>Groups to attend</b> <b>2= Somatic test group</b>	<b>LOCATION</b>
<b>Day/time of the week</b>	<b>Fridays 8.30am</b>		
<b>Workshop 1 (1 hr)</b>	<b>June 24<sup>th</sup> 9:30,</b>	<b>Group 2 Somatic</b>	<b>Tower B Level 6</b>
<b>Workshop 2 (30 mins)</b>	<b>July 1<sup>st</sup> 9:15</b>	<b>Group 2 Somatic</b>	<b>Room 5.1 Level 5</b>
<b>Workshop 3 (30 mins)</b>	<b>July 8<sup>th</sup> 9:15</b>	<b>Group 2 Somatic</b>	<b>Room 5.1 Level 5</b>
<b>Workshop 4 (30 mins)</b>	<b>July 15<sup>th</sup> 9:15</b>	<b>Group 2 Somatic</b>	<b>Room 5.1 Level 5</b>
<b>Workshop 5 (45 mins)</b>	<b>July 22<sup>nd</sup> 9:30,</b>	<b>Group 2 Somatic</b>	<b>Level 11 Tower B</b>
<b>Workshop 6 (30 mins)</b>	<b>Aug 22<sup>nd</sup> 9:15</b>	<b>Group 2 Somatic</b>	<b>Room 5.1 Level 5</b>
<b>Workshop 7 (20 mins)</b>	<b>Friday Sept 30<sup>th</sup> 9:15,</b>	<b>Group 2 Somatic</b>	<b>Room 5.1 Level 5</b>
<b>Workshop 8 (20 mins)</b>	<b>Monday Dec 19<sup>th</sup> 9:15,</b>	<b>Group 2 Somatic</b>	<b>Room 5.5 Level 5</b>

## 12 Appendix 6

### 12.1 Daily Diary Report of Stress Management

**Name** \_\_\_\_\_

Day	Recording Used	Technique from Recording Used	Brief 'On the Spot' Techniques Used	Any Comment you want to make!
Friday 1/7/05	0    1    2    >2	0    1    2    >2	0    1    2    >2	
Saturday 2/7/05	0    1    2    >2	0    1    2    >2	0    1    2    >2	
Sunday 3/7/05	0    1    2    >2	0    1    2    >2	0    1    2    >2	
Monday 4/7/05	0    1    2    >2	0    1    2    >2	0    1    2    >2	
Tuesday 5/7/05	0    1    2    >2	0    1    2    >2	0    1    2    >2	
Wednesday 6/7/05	0    1    2    >2	0    1    2    >2	0    1    2    >2	
Thursday 7/7/05	0    1    2    >2	0    1    2    >2	0    1    2    >2	



## 13 Appendix 7

### *13.1 Structure for post intervention interviews*

You recently took part in a research project looking at the effectiveness of some stress management techniques. Thank you for being part of that. I'd like to ask you some questions now about whether you withdrew or remained in the project, how, or whether you used the techniques covered in that project and what effects, if any, they may have had. You won't be personally identified in any way in the future when research results are published, or at any time, and neither will the organisation you work in.

I'd like to first ask about some aspects of your job and working life.

1. Do you often have to adapt to changing demands and conditions in your job?
2. To what extent does your work require you to interact with others, your peers and subordinates?
3. Is there significant pressure in your job?
4. What about setbacks, do you have to deal with them often?  
Has there been any change in the way you handle pressure and setbacks in your work since the workshops?
5. To what extent do you feel emotionally drained or tired from your job?  
Have there been any changes in this since the workshops?
6. In general do you feel stressed in your job?  
Have there been any changes in this since the workshops?
7. Did you complete the project and all the training workshops? Y/N

IF NO: CONTINUE

IF YES: GO TO 13

8. What were the reasons for withdrawing from the project?
9. What might have encouraged or helped you to complete the series?
10. Do you use any of the techniques that you learned?  
Which ones?  
Why them?

11. Did you get as far as learning any of the brief techniques?  
Do you use these?

12. If techniques are used then :- What benefit do you get from using the techniques?

GO TO 20

13. What led you to complete this project?

14. What might have caused you to withdraw early?

15. Do you use any of the techniques from the workshops?

16. Which ones do you use?  
Why them?

17. What about the on the spot methods compared to the more traditional ones?

18. Has the pattern or frequency of your use of the techniques changed since the workshops finished?

19. You have been using the techniques for a while now. Has that made any difference to the way you do things as a manager?  
Can you give me any specific examples?

20. If stress management training workshops were to be offered again at your workplace would enrol or take part? Why or Why not?

21. When you say I'm stressed, what does that mean?

Thank you for your help in following up this stress management research project. If you would like any further information on this project or want to contact me for any reason at all here is my card.